

# **TIGER Discretionary Grant Application I-70 Truck-Only Lanes Project**



**Safer travel. Stronger business. Better value.  
Missouri transforms America's highways with  
the first-ever dedicated truck lanes.**



*Prepared by: Missouri Department of Transportation  
September 15, 2009*

## Table of Contents

<b>Project Introduction and Background</b>	<b>1</b>
<b>Contact Information</b>	<b>1</b>
<b>Project Description</b>	<b>1</b>
<b>Project Parties</b>	<b>4</b>
<b>Grant Funds and Sources and Uses of Project Funds</b>	<b>5</b>
 <b>Primary Selection Criteria: Long-Term Outcomes</b>	 <b>5</b>
<b>State of Good Repair</b>	<b>5</b>
<b>Economic Competitiveness</b>	<b>7</b>
<b>Livability</b>	<b>9</b>
<b>Sustainability</b>	<b>10</b>
<b>Safety</b>	<b>12</b>
<b>Evaluation of Expected Project Costs and Benefits</b>	<b>14</b>
<b>Evaluation of Project Performance</b>	<b>16</b>
 <b>Primary Selection Criteria: Job Creation &amp; Economic Stimulus</b>	 <b>16</b>
<b>Project Schedule</b>	<b>19</b>
<b>Environmental Approvals</b>	<b>20</b>
<b>Legislative Approvals</b>	<b>20</b>
<b>State and Local Planning</b>	<b>21</b>
<b>Technical Feasibility</b>	<b>21</b>
<b>Financial Feasibility</b>	<b>21</b>
 <b>Secondary Selection Criteria: Innovation</b>	 <b>21</b>
 <b>Secondary Selection Criteria: Partnership</b>	 <b>23</b>
<b>Jurisdictional and Stakeholder Collaboration</b>	<b>23</b>
 <b>Federal Wage Rate Requirement</b>	 <b>24</b>
 <b>NEPA Requirement</b>	 <b>24</b>
 <b>Environmentally-Related Federal, State and Local Actions</b>	 <b>24</b>
 <b>Web Links</b>	 <b>25</b>

## Project Introduction and Background

### Project Description

The Missouri Department of Transportation (MoDOT) is seeking TIGER Grant funding assistance to rehabilitate and widen an initial section of the Interstate 70 Corridor with dedicated truck lanes separated from general-purpose traffic lanes. In this application, MoDOT refers to the project as the I-70 Truck-Only Lanes Project.

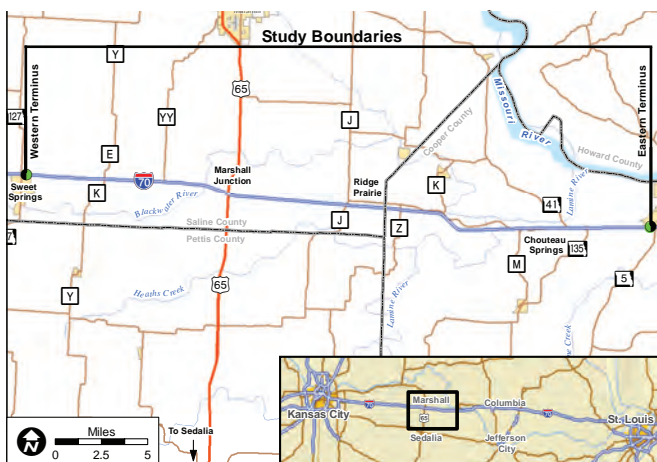
This initial I-70 Truck-Only Lanes Project represents the first implementation phase in an overall 200-mile statewide improvement to the I-70 Corridor between Kansas City, Missouri and St. Louis, Missouri. While a statewide implementation of a truck-only lanes corridor is the desired end goal for Missouri, MoDOT has identified a 35-mile section of the I-70 Corridor, within which MoDOT proposes to construct 25 or more miles as a truck-only lanes facility.

The I-70 Corridor has been identified nationally as a high-priority corridor for improvement. The corridor has been designated as a "Corridor of the Future" by the U.S. Department of Transportation. As part of that program, the project could serve as the first demonstration of an 800-mile, multi-state, truck-only lanes facility linking Missouri, Illinois, Indiana and Ohio.

### Project Study Area

The project study area is located between Sweet Springs, Missouri (Exit 66) and Boonville, Missouri (Exit 101). The project is located within two rural counties – Saline County (Congressional District 4) and Cooper County (Congressional District 6) – both included on the Federal Highway Administration's economically distressed areas list.

### Project Study Area



The map shows the study area for the I-70 Truck-Only Lanes Project in relation to the 200-mile statewide corridor. For a larger view, go to <http://www.modot.org/arra/tiger/3-Project-Study-Area.pdf>. Most of the study area is rural, four-lane interstate highway with a grassy median. The urban areas of the study corridor within metro Kansas City and St. Louis have three or four lanes in each direction and are separated by a concrete median barrier.

MoDOT selected this section as the initial I-70 Truck-Only Lanes Project because it:

- Represents the intersection between project affordability and economic impact. Since the area is economically distressed, it provides an opportunity to stimulate job creation and other economic activity and benefits.
- Effectively demonstrates a rural application of the truck-only lanes concept and how it would function;
- Provides the opportunity to develop this economically distressed area with an improved truck-car separated interchange at U.S. 65 for improved safety, traffic operations and economic development benefits;
- Offers connections to intermodal hubs, rail corridors and freight generating facilities along the U.S. 65 Corridor, an important north-south connector across the state;

### Contact Information

**DUNS Number:** 025280335

**Governor's Section 1511 Certification:** [http://testimony.ost.dot.gov/ARRAcerts/1511/1511\\_Certification\\_030409\\_MO.pdf](http://testimony.ost.dot.gov/ARRAcerts/1511/1511_Certification_030409_MO.pdf)

#### Central Contractor Registration:

CAGE/NCAGE: 0W4X3

To ensure compliance with the TIGER Grant process, MoDOT updated their registration in August 2009.

#### Primary Contact for Application Coordination:

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### Project Description

**Name of Project:** I-70 Truck-Only Lanes Project

**Type of Proposed Project:** Innovative Highway of the Future

**Project Location:** Sweet Springs, Missouri (Exit 66) to Boonville, Missouri (Exit 101) in Saline County (Congressional District 4) and Cooper County (Congressional District 6)

**Project Area Description:** Rural economically distressed area

**Requested Grant Fund Amount:** \$200 million

**MoDOT Cost Share Amount:** \$40 million (20% Match)



- Addresses crash rates which are significant along this section of the I-70 Corridor;
- Addresses heavy truck volumes, which comprise an estimated 35 percent or greater of the average daily traffic; and
- Represents the most cost-effective section with fewest impacts to the natural and man-made environment along the corridor.

Rebuilding I-70 with truck-only lanes is one of MoDOT's five highest priorities. A MoDOT initiative called *A Conversation for Moving Missouri Forward* identifies transportation options needed to make Missouri roads safer, create jobs and improve Missouri's quality of life. This initiative represents the first step in identifying the state's most critical transportation needs and how to address them.

<http://www.modot.org/conversation/>



MoDOT Director Pete Rahn and the Missouri Highways and Transportation Commission feel that the I-70 Corridor is at the forefront of this initiative. To review Director Rahn's letter of support go to <http://www.modot.org/arra/tiger/4-MoDOT-Support.pdf>.

## History and Background

MoDOT has been studying how best to improve the I-70 Corridor since 1999. This ten-year planning process was completed in 2009 with a Record of Decision to construct truck-only lanes along the I-70 Corridor. With the NEPA process completed, MoDOT is ready to quickly move the project forward into implementation.

Initiated in 2007, the I-70 Supplemental Environmental Impact Statement (SEIS) was an extension of earlier efforts to study whether to improve I-70, and if so, in what way. The I-70 SEIS allowed the study team to look at the feasibility and utility of truck-only lanes compared to the previously selected Preferred Alternative, which was to widen existing I-70 to six lanes.

In August 2009, the FHWA approved the Record of Decision for the I-70 SEIS. The I-70 SEIS selected the strategy to widen the existing 200-mile I-70 Corridor between Kansas City and St. Louis, Missouri with truck-only lanes. The study team developed several truck-only lanes concepts before selecting one that places two truck-only lanes on the inside and two or more general-purpose lanes on the outside in each direction of travel. The choice of a new selected alternative occurred following a collaborative decision-making process that included thorough consideration of all social, economic and environmental factors with extensive outreach, including agency coordination and public involvement. FHWA and MoDOT have worked to avoid, minimize and mitigate impacts throughout the NEPA process. <http://www.improvei70.org>

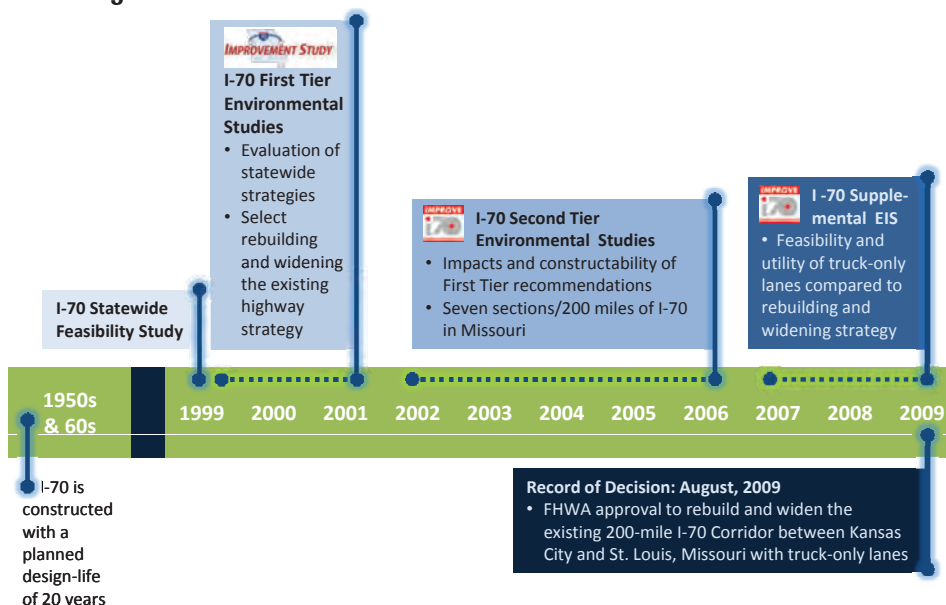
## Purpose and Need for the Project

Interstate 70, our nation's first Interstate highway, is the most important transportation corridor in Missouri, connecting the state's two largest cities, Kansas City and St. Louis, and carrying more rural daily traffic than any other route in the state. Conceived and designed during the Eisenhower presidency in the 1950s, designers planned the highway to serve Missouri for about 20 years. In the years since, through ongoing care and maintenance, MoDOT has been able to extend the life of this highway. However, some parts of the existing highway are more than 50 years old, and the need to rebuild I-70 remains and grows stronger with each passing year. The safety and economic prosperity of Missourians depends, in part, on an I-70 that grows along with the state and nation. That is why MoDOT is working now to develop this implementation plan for the future of I-70.

The purpose and need for I-70 Corridor improvements include the following:

- Roadway Capacity – increase roadway system capacity to meet existing and future travel demands and to improve I-70's general operating conditions;
- Traffic Safety – reduce the number and severity of traffic-related crashes occurring along I-70 between Kansas City and St. Louis;
- Goods Movement – improve the efficiency of freight movement using I-70;
- System Preservation – Preserve the existing I-70 facility as needed to carry existing and future loads;
- Roadway Design Features – upgrade current roadway design features along I-70, including interchanges, roadway alignment and roadway cross sections;
- National Security and Disaster Preparedness – improve this key corridor for moving personnel and equipment for deployment and emergency response; and
- Access to Recreational Facilities – facilitate motorists' use of nearby regional recreational facilities through improved accessibility.

## I-70 Planning Process Timeline



The figure shows the timeline for the completed I-70 planning and environmental studies. The I-70 First and Second Tier Environmental Studies and Supplemental EIS can be viewed at [http://www.improvei70.org/4\\_local\\_main.html](http://www.improvei70.org/4_local_main.html) and the Supplemental EIS at <http://www.improvei70.org>.

Detailed information on the Purpose and Need for the project and data to support that need are included via the following Web link: <http://www.modot.org/arra/tiger/6-Technical-Memorandum-P&N.pdf>

## Truck-Only Lanes Concept

Truck-only lanes are an innovative idea to improve a highway's efficiency and safety, based in part on changes in the way shippers move freight. The truck-only lanes concept is designed to:

- Be used specifically by qualifying trucks;
- Handle the additional weight and height of heavier vehicles and potentially longer combination vehicles, such as triple-trailers;
- Incorporate slip ramps between the truck-only lanes and general-purpose lanes to serve all interchanges;
- Have truck-car-separated interchanges at key locations that have heavy truck traffic and significant freight generating facilities, with separate entrance and exit ramps; and

- Allow usage by all traffic as needed for incident management, such as lane closures for crashes or construction.

A truck-only lanes 3-D conceptual video was developed as part of the I-70 SEIS. The following Web link provides access to this video for further description of the truck-only lanes concept. [http://www.improvei70.org/movies/I-70%20SEIS%20Video\\_web4.wmv](http://www.improvei70.org/movies/I-70%20SEIS%20Video_web4.wmv)

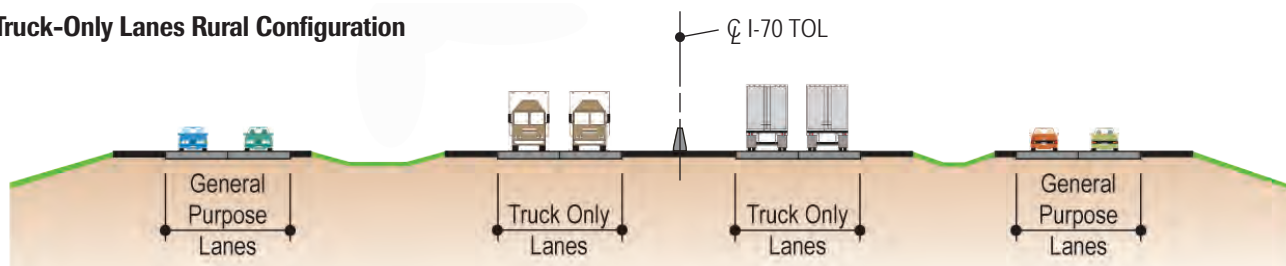
Trucks would be able to access all interchanges along the I-70 Corridor, either through the use of slip ramps between the truck-only lanes and general-purpose lanes, or through truck-car separated interchanges with separate, dedicated ramps for trucks and passenger vehicles.

Within the I-70 Truck-Only Lanes Project requesting TIGER Grant funding, MoDOT would construct the U.S. 65 interchange as a truck-car separated interchange. This interchange would best accommodate truck traffic and be able to carry permitted, heavier oversize and overweight loads, and more efficiently move freight across the state.

The concept of rehabilitating and widening the existing I-70 Corridor with truck-only lanes was determined to have greater benefits than general-purpose widening because it:

- Provides greater capacity and safety benefits compared to general-purpose widening;
- Offers greater responsiveness to public safety concerns about separating general-purpose vehicles from trucks;
- Improves incident management and emergency response through system redundancy;
- Enhances flexibility to respond to increases in freight movement without compromising operational conditions of general-purpose traffic;

## I-70 Truck-Only Lanes Rural Configuration



The I-70 Truck-Only Lanes Project would construct two truck-only lanes and two general-purpose lanes in each direction along existing I-70. The truck-only lanes are located on the inside lanes and the general-purpose lanes are on the outside. A grass median separates the truck-only lanes and general-purpose lanes, and a concrete median barrier separates the opposing directions of truck traffic.



## I-70 Truck-Only Lanes Interchange Access



- Offers reinvestment opportunities for the existing I-70 system and provides better ability to reuse existing infrastructure such as roadbed and bridges;
- Improves maintenance of traffic during construction since the majority of construction work would not interfere with existing travel lanes;
- Provides the potential for MoDOT to be the leader in responding to a national need to improve freight flows and efficiency; and
- Ties in with the Federal Corridor of the Future vision for I-70.

## I-70 Federal Corridor of the Future

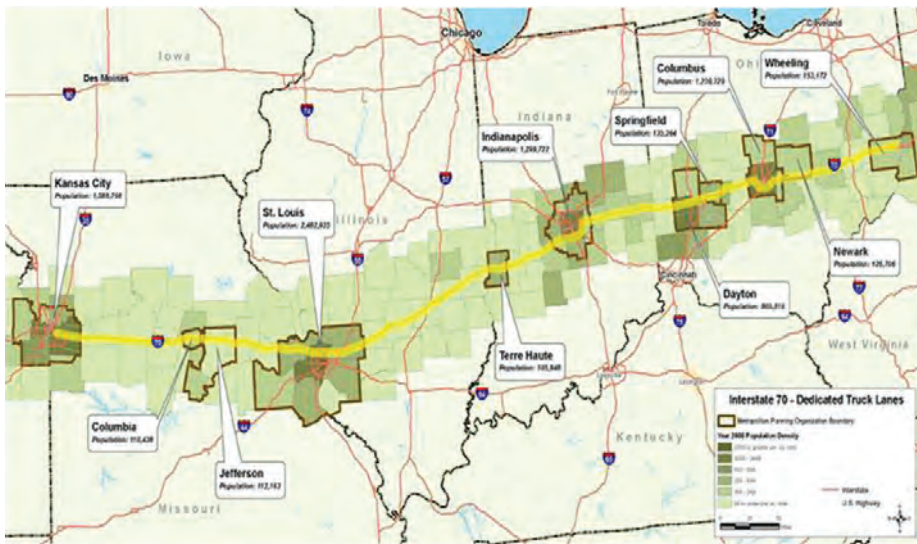
The U.S. Department of Transportation has designated I-70 as a national high-priority corridor within its Corridors of the Future program, highlighting the importance of the highway to national mobility and the economy. In 2006, the Missouri, Illinois, Indiana and Ohio Departments of Transportation developed a multi-state vision for the I-70 Corridor, based on shared transportation issues and needs. The DOTs came up with the idea of improving I-70 by building an 800-mile, four-state corridor with truck-only lanes, which would reduce traffic and freight congestion, improve safety and expand economic growth. <http://www.modot.org/arra/tiger/8-I-70CorridorsOfTheFuture.pdf>

Currently underway, this study draws upon the work already completed by Missouri to help guide the decision-making process. Having a demonstration section of the truck-only lanes concept constructed in Missouri would help move this four-state initiative forward. The Indiana Department of Transportation leads the I-70 Corridor of the Future study and has provided a letter of support for this grant application. <http://www.modot.org/arra/tiger/9-InDOT-Support.pdf>



*Truck access for the majority of interchanges along the I-70 Corridor would be via slip ramps between the truck-only lanes and general-purpose lanes. At key locations, a truck-car separated interchange would be constructed, which consists of separate, exclusive entrance and exit ramps for trucks at an interchange. Trucks and general-purpose traffic would not mix until they merged off the mainline of I-70, on either ramps or local crossroads.*

## I-70 Corridor of the Future



*The I-70 Corridor of the Future study corridor extends from eastern Kansas City, Missouri to the Ohio/West Virginia border near Bridgeport, Ohio/Wheeling, West Virginia.*

## Project Parties

The grant recipient is the Missouri Highways and Transportation Commission and MoDOT director, Pete Rahn. MoDOT works with the public, transportation partners, state and federal legislators, and other state and local agencies to provide a safe and efficient transportation system to the people of Missouri. A six-member bipartisan board, the Missouri Highways and Transportation Commission, oversees MoDOT operations.

While MoDOT is the lead agency seeking TIGER grant funding, many transportation planning partners and project stakeholders have provided support for the I-70 Truck-Only Lanes Project and its approval for TIGER Grant funding. These parties are described further in the Partnership section of the application ([bookmark to Partnership section](#)) and the letters of support are included at <http://www.modot.org/arra/tiger/10-Support-Letters.pdf>.

## Grant Funds and Sources and Uses of Project Funds

### Funding Sources

The largest challenge MoDOT faces for the I-70 Corridor is how to pay for the critically needed improvements. While a TIGER discretionary grant would not pay for the entire 200-mile statewide application of truck-only lanes in Missouri, it would allow for this vital project to get started. MoDOT is requesting a TIGER Grant of \$200 million for the I-70 Truck-Only Lanes Project. This grant would pay for 80 percent of the project's total costs of \$240 million. MoDOT can help leverage this funding with a 20 percent match of \$40 million in non-federal supporting funds towards completion of the initial project. These supporting funds are from currently non-programmed funding from MoDOT's 2010-2014 Statewide Transportation Improvement Program (STIP). [http://www.modot.org/plansandprojects/construction\\_program/STIP2010-2014/documents/Sec05EstimatedFinancialSummary.pdf](http://www.modot.org/plansandprojects/construction_program/STIP2010-2014/documents/Sec05EstimatedFinancialSummary.pdf) and <http://www.modot.org/arra/tiger/30-STIP-Table3-UnprogrammedFunds.pdf> The TIGER grant funding, in combination with MoDOT's supporting funds of \$40 million, will pay for the total project costs of \$240 million. <http://www.modot.org/arra/tiger/11-I-70CostEstimate.pdf>

In addition to the 20 percent matching funds, MoDOT is committed to funding the resurfacing and rehabilitation of the existing I-70 pavement and shoulders reused as part of the truck-only lanes concept within the I-70 Truck-Only Lanes Project. This equates to an additional \$10 million programmed within MoDOT's current STIP for a project from the Lafayette County line to the Blackwater River, which includes the westernmost portion of the proposed truck-only lanes section extending to the east from Sweet Springs.

There are no other sources of funds or funding parties for the proposed project. Without federal funding assistance, it will be challenging for MoDOT to move this high-priority improvement for the I-70 Corridor forward.

### Funding Uses

MoDOT will use all sources of project funds towards the right-of-way acquisition, design, rehabilitation and construction of the I-70 Truck-Only Lanes Project improvements.

## Primary Selection Criteria

### State of Good Repair

MoDOT's good stewardship and maintenance have extended I-70's effective life via safety and efficiency solutions such as median guard cable, rumble stripes and pavement resurfacing. While resurfacing and other work has improved I-70 in many locations, the underlying highway structure has been in use well past its design-life. The highway needs to be rebuilt to ensure a safe and smooth driving surface in the future. Even with MoDOT's recent resurfacing improvements to the I-70 Corridor through the Smooth Roads Initiative (2005-2006), the I-70 Corridor is still in need of major rehabilitation and, in many areas, complete recon-

In recent years, MoDOT shifted its focus from expansion of the state's transportation system to maintaining the existing system in good repair. Special emphasis was placed on maintaining a good level of care on the highway routes that carried the highest traffic volumes throughout the state, especially the interstate system. MoDOT has the following programs and sustainable funding allocations that focus on maintaining and improving the condition of the existing transportation system:

- **Smooth Roads Initiative** - In late 2004, MoDOT implemented the Smooth Roads Initiative (SRI), which was a \$400 million plan to bring the most heavily traveled 2,200 miles of the MoDOT system up to good condition with smoother pavement, brighter road markings and other safety measures in three years.
- **Better Roads, Brighter Future** - This program is working to improve the remainder of the state's 5,600 miles of major highways and bring 85 percent of Missouri's major highway system up to good condition by the end of 2011. The five-year program targets highways carrying 80 percent of all travel on the state highway system and is funded by MoDOT's "Taking Care of the System" funds.
- **Safe & Sound Bridge Improvement Program** - This is a two-phase program to improve 802 of the state's lowest-rated bridges by October 31, 2014. One of these bridges is located within the 35-mile study area for the Truck-Only Lanes Project at Route 135/41.
- **Interstate/Major Bridge Funds** - MoDOT's funding distribution allocates \$125 million annually specifically for the rehabilitation and improvement of the state's interstate routes and major bridges.
- **Remaining Taking Care of the System Funds** - MoDOT's funding distribution also allocates \$310 million for distribution to the MoDOT districts to fund projects that take care of the system.



struction of the existing pavement and bridges. The Corridor is over 50 years old and, on average, pavement rehabilitation/resurfacing projects on I-70 last approximately seven years. Improving the condition and performance of the I-70 Corridor was a major part of the purpose and need within the First and Second Tier Environmental Studies and the SEIS and continues to be for the I-70 Truck-Only Lanes Project.

MoDOT has sustainable maintenance programs in place to ensure the I-70 project continues to operate to a high standard of care for the next 50 years. Once the I-70 Truck-Only Lanes Project is open to traffic, MoDOT will fund the ongoing operations and maintenance needs of the facility through State Transportation Improvement Program funds or the district's operating budget, as appropriate.

## Pavement Condition

The I-70 Corridor within the I-70 Truck-Only Lanes Project in Saline County and Cooper County was originally constructed of eight-inch reinforced concrete pavement on a four-inch base course in 1963 and 1964. The project area also includes a section of the original U.S. 40 route, constructed in 1949 between Sweet Springs and the Blackwater River. Since that time, there have been several cycles of pavement resurfacing programs conducted. In Cooper County, a minimum of four resurfacing efforts have been conducted, with the first major resurfacing effort occurring in 1986 and 1987, followed by mid-1990s, 2002 and 2007. In Saline County, the first resurfacing effort was conducted in 1990, then again in 2000, with several sections being resurfaced again in 2006. This indicates that a resurfacing of the I-70 pavement lasts approximately seven years and the time period between resurfacing jobs continues to decline before a new resurfacing is needed.

This results in significant life cycle costs for I-70. It was estimated in the environmental studies that to keep the existing 200-mile statewide I-70 Corridor in good condition would take a commitment of approximately \$26 million per year in operations and maintenance funds. Once rebuilt and widened with truck-only lanes, MoDOT anticipates that maintenance costs for I-70 will be significantly reduced to approximately \$13 million per year. For the past two years, MoDOT has issued three on-call asphalt repair contracts for the 200-mile I-70 Corridor. Asphalt repairs to I-70 during that period have averaged more than \$1 million per year. MoDOT has also programmed a \$10 million project in the 2012 STIP to resurface the existing corridor between the Lafayette-Saline County line and the Blackwater River.

## Bridge Condition

The I-70 Truck-Only Lanes Project includes 18 structures. There are eight mainline structures, six of which are stream crossings for the Blackwater River, Lamine River and Chou-

MoDOT staff is in the field every day, performing routine maintenance and repair of the existing transportation system and providing incident response. MoDOT's maintenance efforts do not go unnoticed. In recent years, MoDOT has received a number of accolades from transportation partners and stakeholders as a result of the state's increased focus on maintaining the transportation system in good repair. <http://www.modot.org/newsandinfo/District-0News.shtml?action=displaySSI&newsId=28844>  
<http://www.modot.org/mqa/>  
<http://www.modot.org/newsandinfo/District0News.shtml?action=displaySSI&newsId=25241>

teau Creek, and two of which are mainline-over crossings at the U.S. 65 interchange. There are also 10 overpasses (5 interchanges and 5 crossroads). The majority of these structures were constructed when the interstate was originally built in the early 1960s and – aside from the Chouteau Creek bridges – have not been replaced since that time. The mainline bridges over I-70 were widened in the 1970s and 1980s. In addition, the majority of the bridges have experienced at least two rehabilitation cycles during their lifespan.

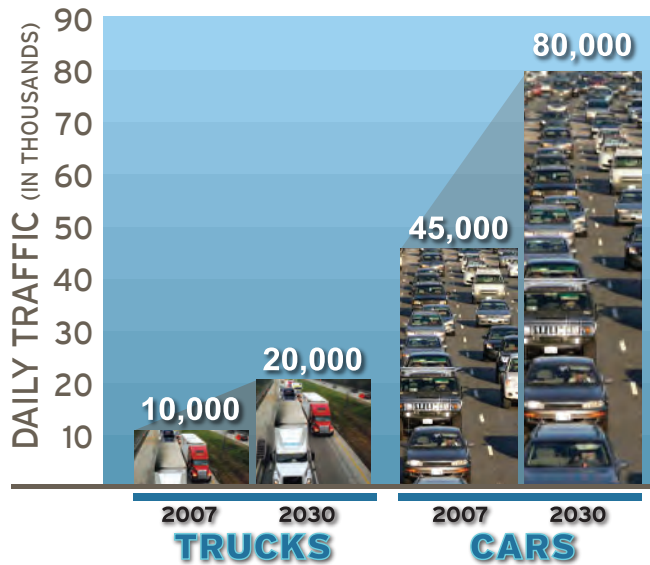
The condition rating for the deck, superstructure and substructure for these structures is generally a six or seven, which is fair to satisfactory condition. The Route 41/135 bridge (bridge number L0944) is in the most critical condition and will be re-decked within MoDOT's Safe & Sound Bridge Improvement Program in 2009. There is no other work currently programmed for the rest of the structures within this corridor. These structures are not functionally obsolete and do not currently require a load posting. The average remaining life expectancy of the majority of these structures is 25 years. There are five voided slab bridges, which have a life expectancy of approximately 10-15 years, since these bridges have already had significant deck patching performed in the past. The following web link provides a summary of bridge condition and maintenance information for the bridges within the I-70 Truck-Only Lanes Project. <http://www.modot.org/arra/tiger/12-Bridge-Condition-Summary.pdf>

## Performance of Existing I-70 Corridor

Interstate 70 is the most important transportation corridor in Missouri, connecting the state's two largest cities and carrying more rural daily traffic than any other route. The interstate has been an engine of economic growth and prosperity for 50 years. But today, many portions of the facility are strained beyond capacity, increasing delays and dampening economic activity. Deteriorating pavement and poorly functioning interchanges compound the problem and make travel on I-70 a daunting experience. The problems are not limited to the urban areas of the corridor, but are experienced statewide.



## I-70 Traffic Projections



As shown in the figure, an average of 45,000 vehicles use the I-70 Corridor daily. Of that, approximately 10,000 are trucks. By the year 2030, all segments of I-70 are expected to operate at unacceptable levels of service – meaning unstable traffic flow, stop-and-go conditions and traffic volumes over the roadway's capacity.

More trucks and cars are traveling on I-70 each day – far more than anticipated when I-70 was designed 40 to 50 years ago. On average, trucks comprise approximately 25 to 30 percent of the daily traffic. Within the section of the I-70 Truck-Only Lanes Project, truck percentages are even higher at roughly 35 percent of the average daily traffic (27,500 ADT). By 2030, forecasts predict that truck traffic on I-70 will double. Changes in how companies in Missouri, the U.S. and around the globe store and deliver goods spur this growth. Without capacity improvements to the I-70 Corridor, the performance of the corridor will continue to degrade and adversely affect the efficient transport of people and goods across Missouri.

Traffic conditions along the I-70 Corridor have reached a level where closing a lane for construction or to address incidents can cause multi-mile backups, resulting in unreliable travel conditions. Because much of the corridor has discontinuous frontage roads, they are not viable alternate routes. The I-70 Truck-Only Lanes Project alleviates this



problem by providing system redundancy. In the event of construction or an incident, the truck-only lanes concept would enable MoDOT to shift all traffic to the truck-only lanes or to the general-purpose lanes for short distances to keep traffic moving.

## Innovative Infrastructure

Interstate 70 would experience long-term benefits to its infrastructure condition by separating trucks and passenger vehicles. Historically, trucks cause greater wear and tear to facilities. If the majority of trucks were traveling in truck-only lanes, the pavement life within the general-purpose lanes would improve, maintaining a longer term of good repair. In addition, the project provides the opportunity to utilize a thicker pavement section to support heavier loads on the truck-only lanes and economize on the pavement on the general-purpose lanes. This would allow MoDOT to design and construct truck-only lanes to meet the greater wear and tear demands of heavy vehicles and their inherent life cycle costs, while allowing for potential cost savings in the general-purpose lanes.

## Economic Competitiveness

The vision for the I-70 Truck-Only Lanes Project entails dedicated lanes for trucks where superior reliability, mobility and safety add value to the trucking industry and freight movements across the country. The vision of this project is a vision of the future, providing the economy of scale required to influence, and potentially shift, freight movements across the Midwest and the United States. The I-70 Truck-Only Lanes Project represents an initial step in a needed long-distance, truck-focused model that can set the standard for other interstate corridors in the future. Because I-70 plays a critical role for both freight and personal transportation, it is crucial that the corridor perform optimally to promote economic prosperity on a statewide and national scale, while at the same time providing a safe and efficient traveling experience for its users.

The I-70 Truck-Only Lanes Project contributes to the economic competitiveness of the state of Missouri and the nation in a variety of ways:

- Stimulates long-term job creation and economic development
- Provides a new and innovative way to move people and goods safely and efficiently
- Provides greater corridor reliability
- Increases productivity of the corridor and its users
- Strengthens connections to other modes and intermodal facilities

## **Long-Term Job Creation and Economic Development**

The I-70 Truck-Only Lanes Project is projected to help stimulate long-term economic growth and employment benefits to the local affected, economically distressed counties (Saline, Cooper and adjacent Pettis County), as well as the state of Missouri. Because the project provides a new and innovative way to separate passenger vehicles from trucks, there could also be long-term benefits to the nation related to the improved reliability, safety, efficiency and productivity of moving people and goods across the heartland of the country. The long-term economic benefits and impacts were determined using a Regional Economic Models, Inc. (REMI) analysis from the Missouri Economic Research and Information Center specifically calibrated for the economic conditions in Missouri. The long-term job creation benefits, and the types and number of long-term jobs created as a result of the project, are discussed and quantified in detail within the Job Creation and Economic Stimulus section of the application and the background data and outputs are available within the Missouri Economic Research and Information Center's research report and REMI outputs. <http://www.modot.org/arra/tiger/13-MERIC-Economic-Impact-Report.pdf> The benefit-cost analysis for the project is detailed within the Evaluation of Expected Project Costs and Benefits section. The following section provides a brief summary of the findings:

- Over the 30-year life cycle of the entire 200-mile statewide project, the project will create an average of 3,753 new jobs each year with an average wage of \$39,731.
- Considering only the initial I-70 Truck-Only Lanes Project, the project will create, on average, 657 new jobs per year with an average wage of \$34,023.
- Considering the three economically distressed counties of Saline, Cooper and adjacent Pettis County, over the entire 30-year life of the project, the initial I-70 Truck-Only Lanes Project is expected to create on average 149 new jobs each year with an average wage of \$26,463 within these counties specifically.
- Overall positive user benefits (travel time savings, crash savings, etc.) also indirectly attract people and jobs to the state of Missouri. Over the entire 30-year life of the project it would create, on average, 1,455 new jobs each year with an average wage of \$18,921.

The levels of average wages expected within these project-related scenarios indicate that the employment created would be high quality, sustainable jobs. The growth in employment includes a wide range of industries such as health care and social assistance, retail trade, manufacturing and real estate, rental and leasing industries.

## **Innovative Corridor of the Future**

The U.S. freight industries are in need of a means to further improve efficiencies in order to remain competitive in the



global marketplace. The I-70 Truck-Only Lanes Project presents a new and innovative concept for the United States: development of separated, long-haul truck-only lanes at a statewide (200-mile I-70 Corridor in Missouri) or multi-state (800-mile I-70 Corridor between Missouri, Illinois, Indiana and Ohio within the federal Corridor of the Future study) level. By allowing for the separation of trucks into truck-only lanes, the I-70 Corridor can continue to serve for many years to come as a testing ground for new evolving trucking technologies, electronic traffic management and freight movement that have not yet been conceived. The new I-70 Corridor will be a true "Corridor of the Future."

## **Improved Corridor Reliability**

One of the critical issues to address for the I-70 Corridor is trip reliability. The reliability of the existing I-70 Corridor is impacted by congestion and crashes, as well as a lack of system redundancy to manage corridor incidents and construction safely and efficiently.

Speed differentials between passenger cars and trucks are a reliability issue that will be addressed by this separated facility as well. According to the I-70 Corridor of the Future Application, truck speeds on I-70 lag behind other corridors in the Midwest due to its lack of reliability, as well as congestion levels. Average travel speeds for trucks on I-70 are lower (50 to 55 mph) than for other east-west corridors such as I-80 and I-40 (60 mph). It is notable that the travel rates show these truck speeds occurring within the rural areas of the corridor, indicating congested and unreliable travel conditions are not solely an urban issue. Lower travel speeds on I-70 have an impact on its utilization and its "attractiveness" to the trucking industry as a cross-country route.

A separated truck and passenger vehicle corridor with additional capacity will provide safer and more efficient movement of goods and reduce truck/passenger car crashes and conflicts. Additionally, it provides system redundancy during incidents or construction, whereby all traffic can be shifted for brief periods to the truck-only lanes or the passenger vehicle lanes to keep traffic flowing. The I-70 Corridor is also made more attractive by being far enough south to avoid the major "Lake Effect" snow events that effect major segments of the I-80 corridor. A truck-only lanes solution to maximize the mobility of I-70 has the potential



to improve the utilization of I-70 as a preferred route for truck flows throughout the Midwest.

## Increased Productivity

The incorporation of truck-only lanes will increase the productivity of the I-70 Corridor. According to the FHWA's Freight Analysis Framework, highways in Missouri and its three Corridor of the Future partner states do now, and are projected in 2020, to carry the majority of commodities by tonnage and value to, from and within each state. In Missouri, 75 percent, by weight, and 81 percent, by value, of freight traveling in, out or through Missouri is via highway. Highway tonnage growth is projected to grow 103 percent in volume and 136 percent in value by 2035. These growth projections indicate that it remains critical to address long-term highway freight demands to remain economically competitive – both in Missouri and across the 800-mile I-70 multistate corridor.

Long-term, a truck-only lanes facility can be designed to accommodate long haul trucks with larger and heavier loads and, with evolving technologies, it could provide opportunities for trucks to travel both safely and efficiently at higher speeds than current standards and infrastructure supports. A unified corridor, designed in concert with intermodal linkages, freight transfer facilities and truck staging areas, will enable larger freight loads to be transferred for long distances more efficiently and without conflicting truck size and weight standards. This will add to the overall productivity of the corridor and its ability to move freight efficiently statewide and across the nation. In a working paper entitled, "The Effect of Size and Weight Limits on Truck Costs" completed in 1991 by Herbert Weinblatt for the FHWA, costs are compared for longer-combination vehicles on a cost-per-ton basis with those of a standard 53-foot, five-axle combination truck with a gross vehicle weight of 78,000 pounds. It found that:

- A seven-axle, triple 28-foot trailer truck with a gross vehicle weight of 116,000 pounds would be 20 percent more productive; and
- A nine-axle, twin 48-foot trailer truck (turnpike double) with a gross vehicle weight of 127,400 pounds would be 24 percent more productive.

## Improved Connections to Other Modes and Intermodal Facilities

The many intermodal facilities and linkages that exist along the I-70 Corridor and the adjoining business communities

The truck-only lanes facility could serve as a catalyst in the Midwest for multistate growth and connectivity, attracting public and private investment. It could help keep the nation's shipping costs low and keep the economy strong across the Midwest.

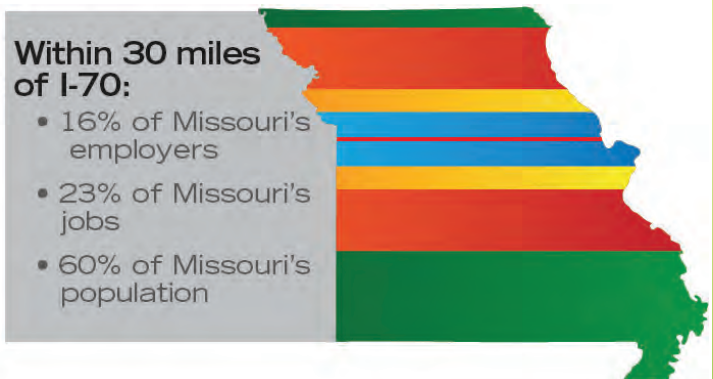
will benefit economically from the proposed I-70 truck-only lanes. A truck-only lanes facility will also serve to make the corridor more attractive to additional freight users looking at new options for moving their goods by more expedient or cost-effective means.

Kansas City and St. Louis are the second and third largest freight rail hubs in the nation, respectively, which allows for strong intermodal connections with the I-70 Corridor. In recent years, intermodal hubs and inland ports for NAFTA trade and clearances have become critical growth areas in both Kansas City and St. Louis. Additionally, the nation's largest navigable inland waterway system, the Missouri/Mississippi River system, has connections to the I-70 Corridor.

## Livability

Enhancing the livability of the study area and the I-70 Corridor is an important outcome of the I-70 Truck-Only Lanes Project. The project contributes to livability by enhancing user mobility, improving safety and including the project stakeholders, public and users of I-70 in the decision-making process.

## Scale of I-70 Project Impacts



As shown in the graphic, I-70 is the "Main Street" of Missouri's population centers and employment. As a result, the scale of the project's impact occurs at many levels. Locally in Missouri, Saline and Cooper counties and users of the I-70 Corridor are impacted by the initial I-70 Truck-Only Lanes Project. However, the project has regional and national significance when one considers the 200-mile and 800-mile application of the project.

## Enhancing User Mobility

The truck-only lanes concept enhances user mobility for the general public and freight carriers using the facility. The project will reduce traffic congestion and slowdowns by separating trucks and cars and minimizing the opportunity for speed differentials by vehicle type. Adding capacity to the existing corridor by expanding it from a four-lane facility to an eight-lane truck-car separated facility also enhances user mobility.

Within the I-70 Truck-Only Lanes Project, MoDOT will reconstruct the U.S. 65 interchange as a truck-car separated



interchange. This provides the opportunity to improve the existing development and attract new development surrounding the interchange area. In addition, the connections north and south along the U.S. 65 corridor would improve, including access to rail and intermodal freight hubs, as well as communities such as Marshall to the north and Sedalia to the south. This makes goods, commodities and services more readily available to this project area and its north-south connecting routes. By ultimately enhancing mobility into the urban areas of Kansas City and St. Louis, the statewide improvement of I-70 will provide access to other modes of transportation such as public transit, air and rail.

### **Improving Safety**

Another livability improvement is the positive perception to be gained by drivers who will feel safer and experience a less stressful driving experience once cars and trucks are separated. Much of the current concern expressed by drivers is the disparity between the size of the average passenger vehicle and the size of the average freight truck. This disparity will only increase as the driving public moves towards more fuel-efficient, economy-sized vehicles, while the freight industry is looking for opportunities to maximize the weight and height of vehicles. Truck-only lanes will provide a positive benefit by separating these trucks from smaller passenger vehicles, therefore enhancing safety. This positive driving experience could build public support for increased funding for innovative transportation solutions, such as the I-70 Corridor of the Future. The safety benefits of the project are described further within the Safety Section of the application. ([bookmark to Safety Section](#))

### **Comprehensive Stakeholder and Public Involvement Process**

A TIGER Grant investment now could lead to great potential for the future of this corridor because the planning process has been thorough, has stakeholder and public support and is complete with a Record of Decision. The truck-only lanes concept was part of nearly ten years of planning that encouraged community participation in the decision-making process. Throughout the Improve I-70 First and Second Tier Environmental Studies and SEIS, MoDOT held stakeholder and public meetings in locations across the statewide corridor to get at the local and regional issues and concerns of people along the 200-mile corridor. During the SEIS process, MoDOT utilized Web-based tools and online public meetings to provide access to everyone, including those who could not make it to a traditional public meeting. Approximately 850 people participated in these online meetings and provided over 250 comments, which is a much higher participation level than experienced previously. In addition, MoDOT posted the truck-only lanes conceptual video on YouTube, generating more than 11,250 views of the video. [http://www.improvei70.org/movies/I-70%20SEIS%20Video\\_web4.wmv](http://www.improvei70.org/movies/I-70%20SEIS%20Video_web4.wmv) Effective community participa-

tion and engagement throughout the corridor was one of the key elements to successfully completing the environmental process. The following Web link provides a link to the Improve I-70 website, which includes community involvement materials prepared and distributed during the environmental studies. <http://www.improvei70.org>.

### **Sustainability**

The I-70 Truck-Only Lanes Project promotes the development of a more environmentally sustainable highway of the future. It is recognized that an improvement to the existing I-70 Corridor is projected to attract additional traffic. This, as a result, will increase the amount of vehicles emitting greenhouse gases. However, the project also offers benefits to improve energy efficiency and reduce emissions over time due to its innovative concept of separating trucks from passenger vehicle traffic. The following sections provide a summary of the costs of emissions related to the projected increase in traffic, and ways to improve the energy efficiency of the corridor to offset the impacts and develop a more sustainable interstate corridor through Missouri.

### **The Costs of Emissions**

A wide variety of factors influence carbon emissions, making them challenging to estimate effectively, especially when projecting to 2030 future conditions. Some of the factors that could change between today and 2030 include government regulations and emission standards, price and availability of fuel and alternative energy sources and vehicle technology (such as electric hybrid or fuel cell vehicles). In the case of I-70, there is also the potential for the future allowance of longer-combination vehicles which could help reduce emissions long-term, since the use of those vehicles can reduce the overall number of trucks that would be traveling on the corridor.

With these caveats in mind, MoDOT calculated the greenhouse gas emissions for the I-70 project for both the No-Build and Build condition at the initial I-70 Truck-Only Lanes Project level and the 200-mile statewide corridor level for the existing period and future year 2030. The calculations take into account the differences in the level of emissions for passenger vehicles and trucks. The application focuses on emissions related to the initial I-70 Truck-Only Lanes Project. However, to see more detailed information and calculations for the project and the 200-mile statewide corridor, go to <http://www.modot.org/arra/tiger/14-GHG-Emissions-Calculations.pdf>. It is important to note that even if the build improvements to I-70 are not implemented, the greenhouse gas emissions would continue to increase as vehicle miles traveled along the corridor increases.

Environmental Protection Agency guidance was used to calculate emissions for the application. Using this guidance, the annual metric tons of CO<sub>2</sub> equivalent for passenger

vehicles today for the initial I-70 Truck-Only Lanes Project was just over 100,000 metric tons. The cost of these emissions was slightly more than \$3.5 million. The equivalent for heavy trucks was around 180,000 annual metric tons of CO<sub>2</sub> equivalent at a cost of a little more than \$5.8 million. In looking at the design year 2030 for the No-Build Alternative, passenger vehicle emissions are expected to be around 274,000 annual metric tons of CO<sub>2</sub> equivalent with a cost of approximately \$9 million dollars. For heavy trucks, the cost was a little over \$15 million with annual metric tons of CO<sub>2</sub> equivalent near 460,000.

The Build condition numbers are only slightly higher than the No-Build. The increase between the No-Build and the Build scenarios is due to increased vehicle miles traveled caused by attracting more traffic to the corridor. In 2030, MoDOT estimates that the passenger vehicle emissions will be a little more than 280,000 annual metric tons of CO<sub>2</sub> equivalent. MoDOT expects the additional costs over the No-Build to be around \$250,000. For heavy trucks, the annual metric tons of CO<sub>2</sub> equivalent are expected to be near 470,000 metric tons, with estimated increased costs of slightly more than \$430,000. <http://www.modot.org/arra/tiger/14-GHG-EPA-Guidance1.pdf> <http://www.modot.org/arra/tiger/14-GHG-EPA-Guidance2.pdf>

### Improving Energy Efficiency

These emission and cost estimates do not take into account a variety of potentially influencing factors that could provide benefits to reducing energy consumption and greenhouse gas emissions. Most of the focus for reducing greenhouse gas is on improved vehicle efficiency and low-carbon fuel. However, there are measures related to the project that could reduce greenhouse gas emissions over the long-term, such as:

- Replacing aging infrastructure in existing corridors – The I-70 Truck-Only Lanes Project will upgrade an existing facility instead of creating a new transportation corridor.
- Increasing efficiency of transportation systems – Minimizing congestion and stop-and-go conditions will help to reduce the inefficient use of energy. Separating trucks from passenger vehicles and adding capacity to the corridor will help minimize congestion and stop-and-go travel conditions.
- Incorporating Intelligent Transportation Systems applications will also help improve the efficiency of the corridor.

### More Productive Trucks

Because of the interstate system's importance nationally, MoDOT is working to make the system more efficient within its jurisdiction by separating trucks and cars with truck-only lanes. Dedicated truck lanes provide the opportunity to design the interstate to accommodate longer

trucks with larger and heavier loads, which would also help reduce the number of trucks traveling the corridor and lower overall emissions. With the help of new technologies this would allow trucks to travel more safely and efficiently at higher speeds than is allowed by current standards and infrastructure. It is estimated that up to 35 percent of truck traffic could convert to the use of longer-combination vehicles if they were allowed in Missouri. According to a study prepared by the American Transportation Research Institute and its Western Highway Institute, the fuel efficiency of heavy trucks decrease by about 30 percent as freight is moved from the typical 5-axle tractor-semitrailer with 60,000 pounds Gross Vehicle Weight (GVW) to a Turnpike Double with a 140,000 GVW. However, because of the additional vehicle capacity, fewer trips are needed so therefore less gallons of fuel are used overall. This results in less greenhouse gas emissions throughout the corridor overall. The reduction in the volume of truck traffic plus the increase in the number of axles would also reduce wear and tear on the highway infrastructure. <http://www.modot.org/arra/tiger/15-ATRI-Energy-Emissions-HPV.pdf>

Another option for making the corridor more efficient and drawing traffic from other congested corridors is truck platooning. Truck platoons allow one tractor to control multiple units, resulting in a reduction of fuel consumption and eliminating delays caused by congestion on mixed-use facilities. An I-70 truck-only lanes facility could ultimately incorporate these types of future truck technologies, if warranted in the future.

### Reducing Stop-and-Go Traffic

Truck-only lanes would improve speeds and efficiency along the I-70 Corridor. The acceleration and braking abilities of trucks are lower than that of most passenger vehicles so separation of vehicle types could substantially improve traffic flow in heavily traveled areas. According to a study conducted by the Texas Transportation Institute, truck facilities could have positive impacts on noise and air pollution, fuel consumption and other environmental issues. <http://www.modot.org/arra/tiger/16-Managed-Lanes-Report.pdf> Creating and maintaining an uninterrupted flow condition for diesel powered trucks will result in a reduction of emissions and fuel consumption when compared to congested, stop-and-go conditions.

Adding capacity to the corridor will help reduce daily congestion and will aid in incident management and construction-related delays – both factors in causing greater vehicle emissions. Traffic experts on the I-70 team prepared an analysis of the type of delays that would be experienced on I-70 based on the volume of traffic it carries if MoDOT has to close down one lane. In the section of the corridor with the lowest volume of traffic, delays in 2010 would be 18 minutes and the back-up would be three miles long. If construction in this area occurs in 2020, delays would be



almost four hours for the same work zone and the back-up would extend approximately 34 miles. It is important to note that the scenario described above is in a rural, low volume section of the corridor. Could Missourians, interstate travelers and freight carriers endure delays of these magnitudes?

## MoDOT's Commitment to Environmental Responsibility

In support of MoDOT's 17 value statements, the department has 18 tangible results to measure its performance. MoDOT evaluates these measures utilizing an assessment tool referred to as the "Tracker." [http://www.modot.org/about/documents/Tracker\\_PDF\\_July09/July09Tracker.pdf](http://www.modot.org/about/documents/Tracker_PDF_July09/July09Tracker.pdf) One of those tangible results is MoDOT's commitment to be environmentally responsible. To that end, MoDOT monitors the tons of recycled/waste materials that it uses in its construction projects. Over the last four-plus years, MoDOT has incorporated more than three million tons of recycled materials – including shingles and old asphalt pavement – in its hot mix asphalt treatments. Some key projects or programs where MoDOT has employed recycling initiatives include the following:

- During the Smooth Roads Initiative, MoDOT used nearly one million tons of recycled materials when performing highway system resurfacing projects in 2006 alone.
- The I-64 reconstruction project through the heart of St. Louis is using 240,000 tons of crushed concrete as rock fill, aggregate base and haul road surfacing. Other projects around the state during the last two years have utilized an additional 243,000 tons of crushed concrete.
- MoDOT has implemented a pilot green incentive program to entice contractors to get green by giving some green. Under this program, MoDOT will assign a "green credit" goal for the contractor and appoint "green credit" values for the use of various environmentally friendly practices such as recycling, reducing pollution and using alternative fuels. The contractor will then earn awards or damages on the project, depending on if they meet the green credit goals. <http://www.modot.org/newsandinfo/District0News.shtm?action=displaySSI&newsId=32407>

Resources to find out more about MoDOT's commitment to environmental responsibility include: <http://www.modot.org/goingggreen/index.htm> and [http://epg.modot.org/index.php?title=Environmentally\\_Friendly](http://epg.modot.org/index.php?title=Environmentally_Friendly)

Because the I-70 Truck-Only Lanes Project would necessitate the demolition of 10 overpasses, the opportunity exists to salvage the steel elements and utilize crushed concrete in the construction of the four new lanes, similar to the I-64 reconstruction project described above. Other recycling efforts would also be applied to the rehabilitation or replacement of the existing lanes.

## Maintain, Protect or Enhance the Environment

Where possible, MoDOT made every effort throughout the NEPA process to reduce the natural and man-made impacts associated with the I-70 studies. Commitments to mitigate impacts to environmental resources, such as water quality, streams and wetlands, are in place and will be carried forward into design and construction. The Environmentally-Related Federal, State and Local Actions section of the application summarizes the planned permitting and mitigation for the project. The I-70 First and Second Tier Studies and the SEIS provide background on the impacts and planned mitigation and commitments associated with the project. [http://www.improvei70.org/4\\_local\\_main.html](http://www.improvei70.org/4_local_main.html) and <http://www.improvei70.org>

## Safety

MoDOT is constantly looking for ways to make highway travel safer. Improving the safety of the I-70 Corridor is a critical component of the purpose and need for the I-70 Truck-Only Lanes Project and was extensively evaluated within the previously completed NEPA studies. Median crossover crashes and fatalities were a significant issue along the I-70 Corridor, due in part to a limited median width of only 40 feet. Additionally, MoDOT designed and constructed the I-70 Corridor in Missouri during the late 1950s and early 1960s and many of the design standards for shoulders, median width, highway grades and curves have changed and become more stringent for safety and operational reasons.

In recent years, MoDOT was able to make short-term safety improvements to the corridor including adding median guard cables to help reduce the number and severity of crossover crashes, as well as improved striping and rumble stripes to warn drivers when they are running off the travel lanes. As a result, safety conditions, especially crash severity, in the existing I-70 Corridor have seen improvements since 2005. The overall crash rate on I-70 has risen approximately six percent





between the 1995 to 2000 and 2003 to 2007 timeframes; however fatal crash severity rates have declined by 39 percent. Improving crash severity conditions are attributable to the installation of median guard cable across the state.

### **Highest Crash Section along I-70**

On a statewide basis, the worst I-70 section for crashes was from Odessa to Boonville, which includes the I-70 Truck-Only Lanes Project requesting TIGER Grant funds. Crashes increased by 42 percent from the base period of 1995 to 2000 to the current analysis period of 2003 to 2007. This section also experienced a high number of fatal crashes at 9.2 average annual fatal crashes over the 2003 to 2007 period. The majority of these crashes consisted of out of control, rear end and head on crash types. During this period, the analysis indicates that the U.S. 65 interchange experienced a higher level of truck-related crashes than other interchanges with similar characteristics along the corridor. The majority of these crashes were on a steep grade approaching the interchange and many were too fast for conditions or improper lane change. The steep grades associated with the existing interchange could have contributed to greater speed differentials between trucks and passenger cars that could benefit from truck-car separation. The proposed interchange reconfiguration provides a truck-car separated interchange within the I-70 Truck-Only Lanes Project for enhanced safety and operational benefits.

### **Truck Related Crashes**

According to recent data from the I-70 Corridor of the Future Application, in the I-70 Corridor stretching from Missouri to Ohio, 10,000 total crashes occurred in 2004. Approximately 18 percent of those crashes involved trucks. However, 36 percent of those crashes involving a fatality involved trucks. <http://www.modot.org/arra/tiger/8-I-70CorridorsOfTheFuture.pdf> Likewise, according to the Federal Motor Carrier Safety Administration's Large Truck Crash Facts 2006, 84 percent of fatalities involved with truck fatal crashes occurred to passenger vehicle occupants. <http://www.modot.org/arra/tiger/17-LargeTruckCrashFacts2006.pdf> Within Missouri along I-70, trucks were involved in 13 percent of the total crashes from 2002 to 2005 and 40 percent of the fatal crashes. Recent MoDOT research has demonstrated that trucks, in comparison to passenger vehicles, are proportionally more responsible for injury crashes in rural and urban areas and fatal crashes in urban areas (Kansas City, Columbia and St. Louis) over the I-70 Corridor in Missouri. <http://www.modot.org/arra/tiger/18-MoDOT-Safety-Research-RI-07-006.pdf>

Several factors may be responsible for trucks being proportionally more responsible for causing fatal, disabling and minor injuries crashes. The most generally accepted factors are related to truck vehicles' lack of maneuverability and vehicle response lags – meaning that bigger and heavier vehicles are unable to respond quickly to rapidly changing

roadway conditions, and unable to evade rapid passenger car maneuvers and other downstream incidents. Additionally, the same MoDOT research demonstrated that on average, commercial trucks traveled approximately 3.5 miles per hour slower than passenger vehicles on rural stretches of I-70. The speed differential between the two types of vehicles traveling in the same lane encourages more lane changes, more interactions between the two types of vehicles with vastly different capabilities, and as a result, more chances for a crash. <http://www.modot.org/arra/tiger/18-MoDOT-Safety-Research-RI-07-006.pdf>

### **Safety Benefits of Truck-Only Lanes**

Implementation of truck-only lanes on I-70 will effectively serve to separate long-distance traveling truck traffic from passenger vehicles and traffic seeking local interchange access. Although some interactions between large trucks and passenger vehicles will still occur in merge and diverge areas (via slip ramps), the two types of vehicles traveling in the same direction in rural areas will be physically separated by a 30-foot grassed median and associated shoulders. Truck and passenger car interactions occur only in those areas where local access is provided to trucks and will be signed and warned accordingly. In the instances where crashes do still occur, the provision of truck-only lanes provides system redundancy that allows all traffic to be shifted to one set of lanes or the other (truck-only lanes or general-purpose lanes) while emergency services clear the incident.

Upgrading I-70 with truck-only lanes will also incorporate several design features beyond the physical separation of trucks and passenger vehicles that will improve overall safety in the corridor. Among those design features, increased clear zones, improved inside and outside shoulders, improved horizontal and vertical curves and continuous concrete median barrier between opposing truck-only lanes will serve to improve safety further in the I-70 Corridor. These features will allow improved run-off-road vehicle recovery, incident management, and will reduce cross-median crash probabilities.

Within the I-70 Second Tier Environmental Studies, MoDOT developed a methodology to estimate changes in crash rates based upon the types of implemented enhancements to roadway design safety. <http://www.modot.org/arra/tiger/19-I-70-Program-Manual-Chapter4.pdf> This methodology accounted for design features such as increased capacity, enhanced clear zones, improved inside and outside shoulders, wide center medians and improved guardrail and improved horizontal and vertical geometry. Applying this methodology to the I-70 corridor statewide, MoDOT projected decreases in crashes over a No-Build condition.

- Property Damage-Only (PDO), Injury, and Fatal crash rates reduced by 16, 18, and 33 percent, respectively over a No-Build condition.

- The percent reductions in crash rates translate to a crash reductions estimate of approximately 683 PDO crashes, 218 Injury crashes, and 20 Fatal crashes in the year 2050 on I-70 in Missouri.
- Over a 30-year facility life-cycle ending in 2050, improving the I-70 Corridor with truck-only lanes could result in the reduction of approximately 17,900 PDO crashes, over 5,650 Injury crashes and over 500 Fatal crashes. <http://www.modot.org/arra/tiger/20-User-Benefits-Summary.pdf>

These estimates of crash savings are conservative in nature due to a lack of empirical data available related to truck-only lanes facilities. Existing comparable truck-only lanes facilities do not currently exist, therefore no accepted methodology for crash reductions exists. As a result, the crash savings estimates do not include the potential positive effects of safety enhancements such as physically separating trucks and passenger vehicles with truck-only lanes, which would serve to reduce speed differentials, crash severities and possibly incidence.

### **Security Benefits of Truck-Only Lanes**

There is also a security component to the truck-only lanes concept. Because trucks would have their own dedicated lanes, this could allow for safer transport of hazardous materials, military vehicles and other forms of oversize/overweight trucks. This would limit the interaction between these types of transport vehicles and passenger vehicles, thus minimizing the overall risk to all travelers.

### **Evaluation of Expected Project Costs and Benefits**

MoDOT has performed a detailed evaluation of the expected project costs and benefits of the I-70 project. The following sections provide a summary of the findings of the Benefit-Cost analysis related to traditional transportation user benefits such as travel time savings, vehicle operating cost savings and crash savings, as well as other potential benefits or costs of the project such as household budgets, emissions and public health, safety and welfare.

### **Methodology and Assumptions**

In order to weigh the expected project benefits versus the costs, a rigorous technical evaluation of the stream of monetized potential user benefits was compared against initial construction cost estimates and long-term operation and maintenance cost estimates. The benefit and cost comparison was produced for construction of the entire 200-mile statewide corridor across Missouri because the I-70 Truck-Only Lanes Project seeking TIGER Grant funding represents an initial section of an overall corridor wide implementation of truck-only lanes. It is recognized that the full benefits of a truck-only lanes facility would be realized by ultimate completion of the statewide corridor.

Data used in the calculation of estimated project benefits over the life cycle of the 30-year project were derived from traffic analysis, travel demand modeling and MoDOT crash record databases prepared in the I-70 Second Tier Environmental Studies and subsequent Supplemental EIS. During those environmental studies, MoDOT evaluated the measures of effectiveness (travel time, vehicle operating cost and crash rates, etc.) for the project and the project's expected user benefits. In addition, extensive research was conducted for the application to determine appropriate values to apply to each analyzed category for benefit-cost analysis calculations. Detailed methodology and assumptions related to the evaluation of the benefit-cost analysis are available for review at <http://www.modot.org/arra/tiger/20-User-Benefits-Summary.pdf>.

### **Positive User Benefits**

The quantitative analysis of potential user benefits that would result from improving the I-70 Corridor with truck-only lanes compared to total project costs resulted in a positive Benefit-Cost ratio of 1.12. This ratio is considered conservative due to the inability to quantify many safety benefits that would result from the separation of trucks and passenger vehicles. The discounted net present value of combined user benefits was \$3.9 billion, while the total net present value of costs (construction plus operations and maintenance) totaled \$3.5 billion. The total net present value of benefits minus costs for the project is \$407.7 million over the 30-year life cycle of the project. The internal rate of return (IRR), an indicator of the efficiency or yield of the investment in the project, is approximately eight percent. In simpler terms, the IRR is the interest rate at which the cost of the investment leads to the benefits of the investment. A discount rate of seven percent was assumed. All metric indicators prepared for this project demonstrate that construction of truck-only lanes on I-70 across the state of Missouri is a worthwhile investment and will lead to over \$400 million of user benefits. <http://www.modot.org/arra/tiger/20-User-Benefits-Summary.pdf> This analysis excludes any short-term or long-term economic benefits resulting from the investment in construction and resulting job creation. Those benefits are discussed within the Economic Competitiveness and Job Creation and Economic Stimulus sections of the application.

The project results in a positive Benefit-Cost ratio of 1.12. This is significant when considering the discounted net present value of combined user benefits is \$3.9 billion, compared to a total net present value of project costs totaling \$3.5 billion. Additionally, the internal rate of return, an indicator of the efficiency or yield of the investment in the project, is approximately 8.0 percent. All metric indicators prepared for this project demonstrate that construction of truck-only lanes on I-70 across the state of Missouri is a worthwhile investment and will lead to over \$400 million of user benefits.

## Truck-Car Separated Interchange Benefits

Construction of truck-only lanes on I-70 statewide assumes that a minimum of three truck-car separated interchanges with major U.S. routes will be constructed at U.S. 65, U.S. 63 and U.S. 54. The U.S. 63 (Columbia) and U.S. 54 (Kingdom City) are already intensely developed with highway-retail service businesses such as service stations, restaurants and hotels. However, the U.S. 65 interchange is largely undeveloped today and is located within the I-70 Truck-Only Lanes Project requesting TIGER Grant funding.

It is anticipated that reconfiguring this interchange as a truck-car separated interchange will benefit I-70 passenger vehicle and truck travelers and the local communities in the general vicinity of this interchange. Construction of a truck-car separated interchange at this location could lead to land use changes involving the development of retail and truck-oriented businesses in the vicinity of the interchange.

The U.S. 65 interchange with I-70 is currently configured as a cloverleaf which offers very limited development potential for roadside services because a cloverleaf occupies large amounts of land that could otherwise be developed, has quick flowing traffic which generally does not stop for services and, if traffic does stop, the cloverleaf configuration only allows access to one side of the divided highway, either to the north or south, depending on the exit chosen.

New economic development benefits at this interchange would largely be the result of the modification of the existing cloverleaf interchange and a greater amount of truck traffic being attracted to this interchange location due to the truck-car separation. It is estimated that with the interchange modifications, the area can support a direct economic impact of over \$25.8 million in retail spending annually using current traffic projections for this portion of the corridor. <http://www.modot.org/arra/tiger/26-US65Interchange-Economic-Impact.pdf> The Job Creation and Economic Stimulus section provides estimates of the number and types of businesses that are projected to locate at the U.S. 65 interchange, as well as how many jobs could be created, once the truck-car separated interchange is reconfigured by the I-70 Truck-Only Lanes Project.

## Household Budget Benefits

In addition to the traditional benefit-cost analysis based upon basic user benefits, other beneficial factors may also result from construction of truck-only lanes on I-70. These factors are not easily quantified since there is a lack of empirical data, and typically involve land use and effects on household budgets. Household budgets could be positively impacted with the construction of truck-only lanes on I-70 due to increased efficiency in the shipping of goods. It is proposed that a statewide application of truck-only lanes

would provide greater corridor reliability and potentially allow the use of longer-combination vehicles in the truck-only lanes. The use of these vehicles provides goods movement efficiencies due to reduced costs of transport from consolidation of multiple tractor-trailer combinations into one combination pulled by one tractor-trailer. The reduced costs of transport will be factored into the costs of goods and thus passed on to the household consumer. Longer-combination vehicle use is only proposed once the entire 200-mile application of truck-only lanes is constructed.

## Emissions Benefits

Future carbon emissions related to the project have been evaluated and estimated within the Sustainability section of the application. ([bookmark to Sustainability](#)) The greenhouse gas emissions have been calculated for both the No-Build and Build alternatives at the 200-mile level and at the initial I-70 Truck-Only Lanes Project level. While the project is not anticipated to reduce greenhouse gas emissions, the Build Alternative numbers are only slightly higher than the No-Build – even with the added capacity. The increase between the No-Build and the Build scenarios is due to increased vehicle miles traveled caused by attracting traffic from other facilities. However, there would be some benefits of the project related to improving energy efficiency due to the reduction in vehicle hours traveled, minimization of stop-and-go travel conditions and the potential use of longer-combination vehicles that are challenging to quantify at this level of study.

## Public Health and Welfare Benefits

The chief benefit of the I-70 project to the public's health and welfare comes through the safety benefits of the project. Upgrading I-70 with truck-only lanes will incorporate several design features beyond the safety benefits of the physical separation of trucks and passenger vehicles. These design features include improved clear zones, inside and outside shoulders, horizontal and vertical curves and a continuous concrete median barrier between opposing truck-only lanes. These features will allow improved run-off-road vehicle recovery, incident management, and will reduce cross-median crash probabilities.

Crash savings were estimated by utilizing research and analyses completed for the I-70 Second Tier Environmental Studies that determined that safety enhancements and design upgrades would result in an overall crash rate reduction of approximately 20 percent. Within the 30-year lifespan of the project, improving the I-70 Corridor with truck-only lanes would result in a discounted net present value crash savings of \$1.6 billion. This estimate is considered conservative due to the exclusion of potential crash reduction benefits resulting from the physical separation of large trucks and passenger vehicles and the addition of a concrete median barrier for opposing truck traffic.



Additional information on the number of crashes reduced by crash type is provided within the Safety section of the application. ([bookmark to Safety](#))

The I-70 NEPA studies looked at the expected project costs and benefits to other public health and welfare factors such as water and air quality. The NEPA process determined that there are not expected to be significant impacts to water or air quality along the corridor as a result of the project. MoDOT is committed to maintaining and protecting the natural and man-made environment as the I-70 Truck-Only Lanes Project moves forward into implementation.

## Evaluation of Project Performance

### MoDOT System-wide Evaluation

MoDOT has a system in place to measure its performance. Tracker is a tool to assess how well MoDOT delivers services and products to its customers. Much like a GPS tracking system, this tool can only show the direction in which the department is heading. Department leaders, then, must determine if it is going in the right direction that best serves MoDOT's customers. Tracker can be viewed via the following Web link: [http://www.modot.org/about/documents/Tracker\\_PDF\\_July09/July09Tracker.pdf](http://www.modot.org/about/documents/Tracker_PDF_July09/July09Tracker.pdf)

Within Tracker, five measures (19a-e) are directly related to the American Recovery and Reinvestment Act:

- Recovery Act projects and dollars awarded to date,
- Percent of Recovery Act project dollars obligated to date,
- Recovery Act project dollars awarded versus budget,
- Recovery Act direct jobs created, and
- Percent of Recovery Act Multimodal project dollars obligated to date.

To date, MoDOT has obligated \$394 million or 61 percent of its share of American Recovery and Reinvestment Act funds for projects statewide. Additionally MoDOT has awarded 65 percent, or \$343 million in discretionary funds. More information on Missouri's American Recovery and Reinvestment Act performance can be found at the following web links. <http://fastlane.dot.gov/2009/08/missouri-invests-recovery-funds-in-good-transportation-projects.html#more> and <http://www.modot.org/newsandinfo/District0News.shtml?action=displaySSI&newsId=37301>

MoDOT also tracks its efforts to improve highway safety through "Missouri's Blueprint to ARRIVE ALIVE" <http://www.modot.org/arra/tiger/21-blueprintforsaferroadways2008.pdf>. The Blueprint contains strategies to reduce traffic crashes on Missouri roads, ultimately saving lives and reducing injuries. Missouri's new goal is set to reduce traffic fatalities to 850 or fewer by 2012. Through hard work and positive partnerships, the efforts are working. The goal of the original Blueprint document created in 2004 – 1,000 or

fewer fatalities by 2008 – was reached by MoDOT an entire year early. In 2007, 992 people died in traffic crashes, down from 1,096 in 2006 and 1,257 in 2005.

### I-70 Truck-Only Lanes Project Evaluation

Within Tracker, MoDOT has developed performance measures specific to the I-70 Corridor since it is one of the highest priority corridors for the state. Measures specific to the I-70 Corridor include:

- Uninterrupted Traffic Flow – related to number of incidents, lane closures and incident locations
- Smooth and Unrestricted Roads and Bridges – related to pavement repairs and interstate/major bridge project selection for STIP
- Attractive roadsides – related to litter control program and corridor aesthetics

The specific performance measures for the I-70 Corridor can be reviewed via the following Web link. <http://www.modot.org/arra/tiger/22-I-70-Tracker-Measures.pdf>

In addition to MoDOT's specific performance measures, MoDOT, and its I-70 Corridor of the Future partners, including Indiana, Ohio and Illinois, have jointly developed performance measures to track and evaluate the performance of the I-70 Corridor. A Memorandum of Agreement and a Development Agreement were developed to guide the performance monitoring effort. The I-70 Truck-Only Lanes Project would be evaluated using these performance measures. <http://www.modot.org/arra/tiger/23-COF-Executed-MOU.pdf> and <http://www.modot.org/arra/tiger/24-COF-Development-Agreement.pdf>

## Primary Selection Criteria: Job Creation & Economic Stimulus

### Methodology

The long-term economic benefits and impacts were determined using a Regional Economic Models, Inc. (REMI) model from the Missouri Economic Research and Information Center (MERIC) specifically calibrated for the economic conditions in Missouri. MoDOT chose to use the REMI model due to its ability to capture the economic benefits to the state of Missouri over the life of the project. MERIC developed the following four scenarios for the economic analysis:

- 1) Build the complete 200-mile corridor and assess statewide impacts;
- 2) Build the Initial I-70 Truck-Only Lanes Project and assess statewide impacts;
- 3) Build the Initial I-70 Truck-Only Lanes Project and assess impacts to the three project-specific economically distressed counties (Saline, Cooper and adjacent Pettis); and

- 4) Build the complete 200-mile corridor and assess statewide user benefits.

The 200-mile statewide scenarios (number 1 and 4) show the economic benefits from right-of-way, engineering and construction costs (all by year) to build truck-only lanes between Kansas City and St. Louis. MoDOT expects that the full 200-mile project would take 13 years to complete at a cost of approximately \$3.5 billion. The initial I-70 Truck-Only Lanes Project scenarios (number 2 and 3) shows the economic benefits from right-of-way, engineering and construction costs (all by year) to build the initial project. MoDOT estimates that the initial project investment would cost \$240 million and would take approximately three years to complete. More detail on the methodology and assumptions for the analysis can be reviewed at the following <http://www.modot.org/arra/tiger/13-Job-Creation-Summary.pdf>.

### Assessment of Benefits

MERIC utilized the REMI model for each scenario to highlight both the short-term (construction phase) and long-term (life-cycle and post construction phase) impacts on job creation, wages and the total economic benefit. For each scenario, the model outputs included:

- Annual fiscal impacts, cumulative benefit-cost and annual industry impacts of an infrastructure investment.
- Annual economic impacts including new jobs created each year along with an industry-specific break down, wage and salary income and total economic output.
- Immediate job creation and economic stimulus benefits of constructing the initial I-70 Truck-Only Lanes Project.
- Anticipated user benefits (cost savings) that will accrue for the traveling public and would cycle through the economy resulting in the creation of more jobs, more wages and increased economic output.

Each of the four scenarios demonstrate that improving and widening the I-70 Corridor through the addition of truck-only lanes will provide an economic benefit to the state of Missouri in the form of jobs, wages and total economic output. <http://www.modot.org/arra/tiger/13-Job-Creation-Summary.pdf>

### Short-Term and Long-Term Job Creation

Short-term and long-term job creation for the I-70 Truck-Only Lanes project is projected to be significant for the state and local affected communities. Depending on the construction scenario, the investment of \$1 leads to the

#### Short-Term and Long-Term Job Creation

Scenario	Life Cycle*				
	Investment	Job creation (jobs/year)	Avg. Wage	Economic Output / Year	Value Added / Year
1) 200-mile project – statewide impacts	\$3.5 billion	3,753	\$39,731	\$644 million	\$405 million
2) Initial project – statewide impacts	\$240 million	657	\$34,023	\$86.5 million	\$58.5 million
3) Initial project – 3 county impact	\$240 million	149	\$26,463	\$16.2 million	\$10.4 million
4) 200 mile project – statewide benefits	\$3.5 billion	1,455	\$18,921	\$187.4 million	\$149.0 million

Scenario	Short-term (Construction Period)				
	Period	Job creation (jobs/year)	Avg. Wage	Economic Output / Year	Value Added / Year
1) 200-mile project – statewide impacts	2010 – 2023	2,164	\$39,189	\$238 million	\$145 million
2) Initial project – statewide impacts	2010 – 2013	791	\$31,282	\$67 million	\$41 million
3) Initial project – 3 county impact	2010 – 2013	149	\$19,907	\$7.7 million	\$4 million
4) 200 mile project – statewide benefits**	2010 – 2023	454	\$24,478	\$40.7 million	\$35 million

Scenario	Long-term (Post-Construction)				
	Period	Job creation (jobs/year)	Avg. Wage	Economic Output / Year	Value Added / Year
1) 200-mile project – statewide impacts	2024 – 2051	4,490	\$39,655	\$831 million	\$523 million
2) Initial project – statewide impacts	2014 – 2051	647	\$34,283	\$88 million	\$60 million
3) Initial project – 3 county impact	2014 – 2051	149	\$34,283	\$16.9 million	\$11 million
4) 200 mile project – statewide benefits	2024 – 2051	1,559	\$25,098	\$203.1 million	\$161 million

\* The life of the project is defined as the typical 30-year life-cycle of the roadway, beginning with statewide project opening in 2020 and ending in design year 2050

\*\* Statewide benefits during the construction period are assumed to begin in the last three years of construction.

*The figure provides a summary of the impacts to job creation, wages and average annual economic output, for the short-term (construction) and the long-term (life cycle and post-construction).*

creation of between \$2 and nearly \$11.50 in economic output. The three economically distressed counties within or near the initial project, Cooper, Pettis and Saline, will see several hundred new jobs per year, both in the short and long-term, averaging about 20 percent of the total new jobs created by this project in the state. The REMI output report also shows the specific industries where jobs would be created. The project will quickly create jobs within the first two years and will continue through the 30-year lifespan of the facility. Not only will the construction of the facility itself lead to economic impacts, the savings produced by the project in the form of travel time savings, vehicle operating cost savings, crash savings and freight-related productivity savings will also provide an economic benefit to Missouri. <http://www.modot.org/arra/tiger/13-Job-Creation-Summary.pdf>

### ***Additional Economic Benefits in the Project Area***

In addition, the initial I-70 Truck-Only Lanes Project would convert the U.S. 65 and I-70 interchange to a truck-car separated interchange. MoDOT anticipates that the interchange conversion would stimulate new development interest to the surrounding interchange area, as well as some new development to local communities to the north and south along the U.S. 65 corridor within Marshall and Sedalia. The U.S. 54 interchange at Kingdom City has similar rural and demographic characteristics as the U.S. 65 interchange area. However, the U.S. 54 (Kingdom City) interchange is heavily developed with a strong mix of highway influenced retail and services. As a result, the U.S. 54 interchange was used as a baseline for comparison with the U.S. 65 interchange for projecting potential retail sales, business and employment, wages and traffic growth projections. An economic study was conducted for the U.S. 54 interchange at Kingdom City during the I-70 Second Tier Environmental Studies. The results of that study were used as part of the economic analysis and development of projections for the U.S. 65 interchange as well. [http://www.modot.org/arra/tiger/25-US54-KingdomCity\\_Economic-Report.pdf](http://www.modot.org/arra/tiger/25-US54-KingdomCity_Economic-Report.pdf)

Since economic development and activity at the U.S. 54 interchange is driven largely by traffic generated by the interstate and highway, the U.S. 65 interchange is projected to have the potential to attract a similar set of businesses, especially in the identified business categories driven by interstate traffic including transportation, retail trade, hotels and lodging and automotive services. The comparative analysis suggests that the area surrounding the U.S. 65 interchange has the potential under today's I-70 traffic volumes to support a direct economic impact of over \$25.8 million in retail spending. The area could support approximately 14 new businesses, employing 284 employees, with total wages of \$4.25 million annually. Considering 2030 traffic projections for the area, if the interchange is developed to its estimated potential, the surrounding three-mile radius has

the potential to support 35 businesses that generate \$60 million in retail sales and employ 610 workers earning \$9.9 million in wages annually. Through 2030, the combined annual retail sales and wages could total almost \$855 million and \$141 million, respectively. <http://www.modot.org/arra/tiger/26-US65Interchange-Economic-Impact.pdf>

### ***MoDOT Civil Rights Program***

MoDOT's External Civil Rights Division is responsible for directing the department's external affirmative action, equal opportunity and nondiscrimination programs, which includes the Disadvantaged Business Enterprise (DBE) Program, On-the-Job Training (OJT) Program, Equal Employment Opportunity, Title VI, Americans with Disabilities Act (ADA) and all other nondiscrimination or affirmative action programs related to federal-aid contracting activities. The division facilitates all DBE and OJT Supportive Services programs statewide, which includes business assistance centers and pre-apprenticeship training programs in Kansas City, Columbia and St. Louis, Missouri. Additionally, the External Civil Rights Division oversees the Missouri Regional Certification Committee (MRCC), which is a one-stop-shop for certifying DBE's statewide and includes the St. Louis Lambert Airport, METRO in St. Louis, the Mid-America Regional Council (MARC) in Kansas City, the City of Kansas City, and the Kansas City Area Transportation Authority (KCATA).

Previously located within another MoDOT division, External Civil Rights was elevated to a division of its own in June 2009 to enhance efforts to involve minority-owned, women-owned and disadvantaged businesses in state construction projects. The move expands important outreach and partnership programs. <http://www.modot.org/ecr/>

One of the division's goals is to build on the progress made in developing pre-apprentice and on-the-job training programs for socially and economically disadvantaged individuals on two of MoDOT's largest projects. Both projects are design-build: the I-64 reconstruction in St. Louis and the reconstruction of almost five miles of Interstate 29/35 and construction of a new Missouri River bridge near downtown Kansas City, Missouri, known as kcICON.

- I-64 Reconstruction Workforce Development: Over the last two years, more than 70 on-the-job trainees have worked on I-64 and five of them have achieved journeyman status, with many more eligible by next year. At 19 percent, the total work force diversity on the I-64 project is exceeding the federal minority goal of 14.7 percent. [http://www.thenewi64.org/new6\\_workforcedevelopment.jsp](http://www.thenewi64.org/new6_workforcedevelopment.jsp) and <http://www.modot.org/arra/tiger/27-Diversity-Article.pdf>
- kcICON (I-29/35) Workforce Development - In its thirteenth month of construction, Kansas City's kcICON project is on the path to achieving its overall project



diversity goal of 12.7 percent. There are 42 on-the-job trainees working now - three in professional services and 39 in construction. The kcICON project committed up to \$1.25 million to develop a work force that better reflects the diverse makeup of the community.

<http://www.kcrivercrossings.org/workforce.html>

### Current Job Needs in Project Counties

The I-70 Truck-Only Lanes Project is planned to be implemented as a design-build job of a similar nature to the I-64 reconstruction and kcICON (I-29/35) projects. Additionally, similar workforce development efforts and DBE involvement are planned to be initiated in relation to the project and will be established as the project progresses further into the design and construction process. The project will also follow MoDOT's affirmative action, equal opportunity and nondiscrimination programs, as described above. This will assist with current unemployment rates and on-the-job skills and training needs in the affected project counties of Saline, Cooper and Pettis counties, as well as other neighboring counties. These counties, and many of their neighboring counties, are included on the FHWA's economically distressed areas list.

Currently, unemployment rates within these counties for the first six months of 2009 (January through June) average 8.6 percent for Cooper County, 8.2 percent for Pettis County and 7.2 percent for Saline County. Preliminary rates for the most recent month, June 2009, show slightly higher unemployment for each county at 9.2 percent, 9.0 percent and 8.4 percent, respectively. According to the US Census Bureau, minority populations (defined as non-white persons) made up 12.1 percent of the population in Cooper County, 12.9 percent in Pettis County and 15.9 percent in Saline County in 2007. The statewide average for minority population is 18 percent. Low-income populations (defined as being at or below the poverty line) for Cooper County were 12.7 percent, 13.3 percent for Pettis County and 17.1 percent for Saline County in 2007.

### Project Readiness

MoDOT is ready to proceed rapidly on the I-70 Truck-Only Lanes Project upon receipt of a TIGER Grant, as evidenced by following:

- Aggressive Project Implementation Schedule with Design-Build Delivery
- Receipt of all Environmental and Legislative Approvals Necessary
- Certification of Project in State Transportation Improvement Program
- Technical and Financial Feasibility of the Project

### Project Schedule

MoDOT's track record demonstrates that it is poised to act quickly when new opportunities present themselves and that it completes projects on time and under budget. MoDOT is prepared to meet an aggressive schedule to complete the I-70 Truck-Only Lanes Project by:

- Immediately launching a six-month design-build procurement process. During that period, MoDOT will purchase needed right of way for the project, complete the permitting process and fulfill environmental mitigation as committed to in the Improve I-70 Second Tier Environmental Studies and Supplemental Environmental Impact Statement.
- Advertising a Request for Qualifications for potential design-build teams to deliver the project prior to the end of 2009. If MoDOT is a successful recipient of the TIGER grant, it would immediately short-list the submitting teams and move forward with issuance of a Request for Proposals. Technical discussions would precede receipt of Initial and Final Technical Proposals.
- Awarding the contract and beginning the design and construction process in August 2010.

### Project Schedule

I-70 Truck-Only Lanes Project Schedule																																																			
Task Name	2009												2010												2011												2012														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec			
TIGER Grant Application Preparation and Approval Process						6/17																																													
I-70 Supplemental EIS Record of Decision						8/14																																													
Request for Design-Build Statement of Qualifications												12/15																																							
TIGER Grant Award												1/15																																							
Request for Design-Build Proposals and Procurement Process													2/22																																						
Right of Way Acquisition																																																			
Environmental Commitments and Permitting																																																			
Design-Build Contract Award																																																			
Design-Build of I-70 Truck-Only Lanes Project																																																			

- Rapidly constructing the project since the concept builds four new lanes outside the existing lanes; enabling MoDOT to maintain four lanes of traffic during construction. When the new lanes are completed, traffic can be switched to the new lanes while the existing pavement is rehabilitated or replaced.
- Substantially completing the project by February 2012.

### **Estimated Jobs Created during Construction**

The I-70 Truck-Only Lanes Project is projected to create jobs during the three-year construction period. The jobs created during the construction period are summarized within the Jobs Creation and Economic Stimulus section of the application ([bookmark](#)) and more detail is provided within the economic analysis report developed by the Missouri Department of Economic Development, Missouri Economic Research & Information Center. <http://www.modot.org/arra/tiger/13-MERIC-Economic-Impact-Report.pdf>

### **Jobs Created During Construction Period**

Scenario	Year 1	Year 2	Year 3
Initial project - statewide impacts	543	1,548	282
Initial project - 3 county impacts	96	303	49

### **History of Successful Project Delivery**

Missouri has three design-build projects underway: the Highway 40/Interstate 64 reconstruction in St. Louis; the I-29/35 Paseo Bridge project in Kansas City (kcICON); and the statewide 802-bridge “Safe & Sound Bridge Improvement” program statewide. For the St. Louis and Kansas City projects, MoDOT’s design-build procurement established a set project budget and required the proposing teams to bid the scope that would deliver the best-value project to the citizens of Missouri. MoDOT will take a similar approach with I-70. With a budget of \$240 million, MoDOT will ask for proposals that build the greatest number of miles of truck-only lanes within the 35-mile window from Sweet Springs to Boonville.

One of MoDOT’s tangible results is to deliver “fast projects that are of great value.” An associated performance measure is to track the percent of projects that are completed on time. That percentage has steadily increased in recent years, from 76 percent in 2006, to 88 percent in 2007, to 91 percent in both 2008 and 2009. For the fiscal year that ended June 30, 2009, MoDOT awarded 461 projects totaling \$1.3 billion – 9 percent under budget for a savings of more than \$135 million. For the last five fiscal years, MoDOT has awarded 2,151 projects costing \$5.7 billion – 5.5 percent under budget saving taxpayers more than \$334 million. The savings to taxpayers went even deeper during



*Missouri was also the first state in the nation to begin construction on highway projects funded by the American Recovery and Reinvestment Act. The minute President Obama signed the economic recovery bill; MoDOT went to work to replace one of the state’s oldest and most rickety bridges, the Osage River bridge near Tuscumbia. Construction on three other recovery act projects also started immediately: on Route 60 in southwest Missouri, Interstate 35 in northwest Missouri and Interstate 55 in southeast Missouri.* <http://www.modot.mo.gov/firstinnation/photos.htm>

that five-year period because the department completed 2,241 projects worth more than \$6.3 billion more than one percent under budget saving \$64.8 million.

### **Environmental Approvals**

On August 14, 2009 the Record of Decision for the I-70 Supplemental Environmental Impact Statement was signed by the Federal Highway Administration. The FHWA approved the recommendation of the Truck-Only Lanes Alternative as the Selected Alternative for the I-70 Corridor. <http://www.improvei70.org> As a result, the I-70 Truck-Only Lanes Project requesting TIGER Grant funds has completed all environmental approvals necessary through the NEPA process for the project to proceed to design and construction. Any remaining permitting and cultural or environmental mitigation/testing required as a result of the NEPA process for the project is summarized in the Environmentally Related Federal, State and Local Actions section of the application.

### **Legislative Approvals**

Missouri has the legislative authority in place to quickly move forward with the I-70 Truck-Only Lanes Project. Missouri Governor Jeremiah W. (Jay) Nixon signed House Bill 359 on July 7, 2009 allowing two percent of the State Transportation Improvement Program list to be designated as “design-build.” This new law makes the process of contracting highway projects quicker and more efficient, allowing the Missouri Highways and Transportation Commission to combine the design and construction contracts. Previously, Missouri statutes provided only for three design-build projects. No other legislative approvals would be needed to move forward with the project.



## State and Local Planning

If the I-70 Truck-Only Lanes Project is selected for a TIGER Discretionary Grant, MoDOT will amend the 2010-2014 Statewide Transportation Improvement Program to include the initial I-70 Truck-Only Lanes Project. On September 2, the Missouri Highways and Transportation Commission took action to allow MoDOT to certify that the I-70 Truck-Only Lanes Project would be added to the STIP if TIGER Grant funding is received. The certification letter from the Commission can be reviewed at the following link: <http://www.modot.org/arra/tiger/28-STIP-Certification.pdf>

Within the current STIP, MoDOT has already committed to funding for scoping as well as the resurfacing and rehabilitation of a portion of the existing I-70 pavement and shoulders reused as part of the truck-only lanes concept within the project between the Lafayette-Saline County line and the Blackwater River. This equates to an additional \$10 million programmed within MoDOT's current STIP. [http://www.modot.org/plansandprojects/construction\\_program/STIP2010-2014/index.htm](http://www.modot.org/plansandprojects/construction_program/STIP2010-2014/index.htm)

## Technical Feasibility

As stated above, MoDOT has all environmental approvals necessary for the project to move forward into the design and construction phases. As a result, MoDOT will initiate the design-build process for the project prior to the awarding of TIGER Grant funding by requesting a Statement of Qualifications from interested design-build teams prior to the end of 2009. Then, MoDOT is prepared to short-list qualified teams immediately if the project is selected for TIGER Grant funding in early 2010. Once the TIGER grant has been awarded, the design-build process will continue with short-listed design-build team proposals, which will include sufficient preliminary design work for the project. The contract award will take place by August 2010. The remaining design and construction process will begin in August 2010, with the project being substantially complete by February 2012.

## Financial Feasibility

MoDOT will add \$40 million in state funds to provide a 20 percent match to the \$200 million from the TIGER Discretionary Grant. Those state funds will come from unprogrammed funds in MoDOT's current five-year Statewide Transportation Improvement Program. Table 3 in Section 5 of the 2010-2014 STIP, approved by the Missouri Highways and Transportation Commission in July 2009 shows MoDOT's total available funding versus the total amount programmed. In any given year, there are funds available to be programmed. [http://www.modot.org/plansandprojects/construction\\_program/STIP2010-2014/documents/Sec05EstimatedFinancialSummary.pdf](http://www.modot.org/plansandprojects/construction_program/STIP2010-2014/documents/Sec05EstimatedFinancialSummary.pdf) and <http://www.modot.org/arra/tiger/30-STIP-Table3-UnprogrammedFunds.pdf>

MoDOT has been very successful with its fixed-cost design-build projects to date – The I-64 Reconstruction in St. Louis and kcICON (I-29/35 Missouri River bridge) in Kansas City. Both projects had a set project budget. The proposing teams were evaluated based on the amount of scope they could deliver within stringent completion deadlines and within the set budget. In both cases, the projects are on or ahead of schedule and on budget. This I-70 Truck-Only Lanes Project would be handled in the same manner.

As shown on the project cost estimate spreadsheet, MoDOT has left the ultimate mileage and location of the initial project flexible to encourage innovation in project delivery within the design-build phase. MoDOT is committed to delivering the project within the set budget of \$240 million proposed in this application.

Statewide, MoDOT has been able to economically and efficiently deliver its construction program despite the recent downturn in the U.S. economy. Strategies to increase competition and what MoDOT calls “radical cost control” measures saved Missouri taxpayers \$135 million in Fiscal Year 2009. <http://www.modot.org/newsandinfo/District0News.shtml?action=displaySSI&newsId=34759>

## Secondary Selection Criteria: Innovation

### Innovative Highway of the Future

The idea of separating trucks from other passenger vehicles on highways is gaining national attention. Currently, there are no dedicated U.S. highways for trucks configured in the manner envisioned for the I-70 Truck-Only Lanes Project. Missouri and its Corridors of the Future partner states (Indiana, Ohio and Illinois), plus other states such as Georgia and Texas, are studying the need for corridor wide applications of truck-only lanes, but as yet the concept has not been implemented. This would make the I-70 Truck-Only

### I-70 Truck-Only Lanes Concept



Lanes Project along I-70 in Missouri the first of its kind in the nation. This innovative project could transform the future configuration of interstates to best serve the needs of both the traveling public and commercial vehicles. This one initial section could ultimately result in an 800-mile application of truck-only lanes between Kansas City, Missouri and the Ohio-West Virginia border - the biggest change in the interstate system since its inception in the 1950s.

As envisioned for I-70, it allows flexibility to respond to the latest and greatest trucking needs and technology applications in the future. This could mean the use of truck platoons or "truck trains" with multiple truck trailers joined together, longer-combination vehicles with greater weight and height allowances or some yet-to-be-determined technology application. By allowing for the segregation of trucks for such a long distance, the corridor can continue to serve for many years to come as a testing ground for new evolving and not yet conceived truck technologies, electronic traffic management and freight movement.

### **Current or Planned Intelligent Transportation Systems**

MoDOT is developing a statewide approach to the implementation of Intelligent Transportation Systems (ITS).

<http://www.modot.org/services/travel/intelligenttransportationsystems.htm>

The following six areas are defined as the statewide core ITS areas for development and implementation in Missouri:

- Commercial Vehicle Operations
- Traveler and Weather Information
- Incident Management
- Traffic Control and Monitoring
- Maintenance and Construction Operations
- Transit Management

MoDOT has initiated or plans to initiate the majority of these ITS applications along the I-70 Corridor. The implementation of ITS applications along the I-70 Corridor would improve the operating efficiency of the corridor and improve the safety and mobility of people and goods through the corridor. In addition, MoDOT has an ITS research project underway to determine the best ITS applications for the I-70 Corridor. This research project is focusing on potential ITS applications that could benefit a truck-only lanes facility specifically, as well as efficient passenger and freight movements along the corridor. The research project will be completed by December 2009.

### **Commercial Vehicle Operations**

Currently weigh stations along the I-70 Corridor in Missouri are equipped with the automatic vehicle identification systems known as PrePass. This system enables the pre-screening of participating transponder-equipped commercial vehicles throughout the nation. This is part of a statewide deployment of the national Commercial

Vehicle Information Systems Network (CVISN) program. The CVISN program provides coordination of commercial vehicle registration, safety, credential, hazardous materials tracking and other information in and between states. The PrePass system includes high-speed weigh-in-motion equipment, automatic vehicle identification, and vehicle classification equipment. Trucks using the I-70 truck-only lanes facility will benefit from the PrePass system and its ability to facilitate the processing of commercial vehicles while in motion.

### **Incident Management**

An incident management plan is in place for the I-70 Corridor. To assist in the ongoing use of the plan to minimize the impact of traffic incidents, 2/10-mile markers have been installed, incident management response trailers have been deployed and closed-circuit television (CCTV) cameras are being deployed. The 2/10-mile markers will be extended to differentiate between the general-purpose and truck-only lanes. The position of incident response trailers will be adjusted to ensure efficient response to incidents on the I-70 truck-only lanes facility.

CCTV cameras are deployed along the I-70 Corridor in the Kansas City and St. Louis metropolitan areas, as well as some interchanges within Columbia. The existing CCTV cameras provide 100 percent surveillance coverage along these urban areas. In rural areas, the CCTV cameras are currently being installed in strategic locations along the corridor. The complete installation of CCTV cameras is expected by the end of 2009. As part of the extension of the existing incident management program in Missouri, additional surveillance cameras would be installed within the I-70 Truck-Only Lanes Project area at the U.S. 65 truck-car separated interchange and other strategic locations. The additional deployment of this equipment would increase the surveillance capacity for incident management in the rural segments of the corridor.

The addition of truck-only lanes provides a redundant roadway system that serves traffic in the same direction. This is a great benefit for incident management. When either the truck-only or general purpose lanes are blocked, the other roadway lanes (general-purpose or truck-only lanes) can be used as an alternative during the incident. This will minimize delays and improve safety for all facility users and will improve safety for incident responders as well.

### **Traveler Information**

Along the I-70 Corridor, MoDOT has installed Dynamic Message Signs (DMS). These signs provide real time traffic operation information for travelers. The Kansas City Scout traffic management center (TMC) is currently responsible for the operation of all DMS along the I-70 Corridor from Kansas City to the limits of the St. Louis metropolitan area. The KC Scout TMC operates seven days a week and 24



hours per day. The DMSs provide up-to-date information on travel time, traffic incidents, weather conditions and other relevant information for commercial vehicles operators and the general public. Additional DMSs would be installed along the proposed I-70 Truck-Only Lanes Project at strategic decision points.

## Weather Information

MoDOT has installed several Road Weather Information Systems (RWIS) and Environmental Sensor Stations (ESS) along the I-70 Corridor. This RWIS stations collect roadway and weather condition data used to provide motorists driving condition information and help plan maintenance activities. Additionally, MoDOT would install RWIS along the corridor as part of the construction of truck-only lanes along I-70. The deployment of additional RWIS along the corridor will help extend the weather observation area and create an opportunity to connect the existing RWIS network to the national road weather observational network known as CLARUS.

CLARUS is a nationwide collaboration between transportation and weather agencies to integrate a road weather observational network that would provides timely and accurate weather, pavement and water level information to drivers. Many states throughout the nation have been integrated into the CLARUS network. Missouri has confirmed interest in becoming a part of the CLARUS network but has yet to install the necessary physical equipment. The construction of truck-only lanes along the I-70 Corridor provides an opportunity to expand the current RWIS along the corridor and integrate it with the nationwide CLARUS network.

## Parking Management

A concern identified along the I-70 Corridor is the lack of availability and up-to-date information on truck parking spaces. As part of the construction of the project, a parking management system could be installed with traffic counters to determine the number of parking spaces available and provide the information to commercial vehicle drivers within the corridor. This service would help commercial vehicle drivers to make an informed decision on stops and available parking along the route. Through a parking management system, the actual number of available parking spaces could be posted on a Web site, or through other means such as 511 traveler information system (currently implemented in the St. Louis area only). One key pilot area for a parking management system would be the U.S. 65 interchange, planned to be constructed as a truck-car separated interchange, with enhanced truck amenities including truck parking and breakdown/rest areas and truck-related service and fueling stations.

## Work Zones/Construction Management

Work zone performance in mobility, visibility and safety are priorities and reported in MoDOT's Tracker. Having the ability to use smart work zone technology during construction of the I-70 Truck-Only Lanes Project will improve the safety and operations of the corridor. Smart work zone applications will more proactively monitor and manage traffic operations in work zones. Smart work zone applications will provide some form of traffic detection, surveillance cameras and DMSs as portable units that can be relocated and implemented very quickly. MoDOT has a Web site dedicated to providing up-to-date information to travelers concerning work zones and planned construction within the state. MoDOT also solicits feedback from customers traveling through work zones through surveys advertised on DMSs and posted on the website. <http://www.modot.mo.gov/work-zones/documents/WZCustomerSurvey.pdf>

## Secondary Selection Criteria: Partnership

### Jurisdictional and Stakeholder Collaboration

While MoDOT is the lead agency seeking TIGER grant funding, many transportation planning partners and project stakeholders have expressed support for the I-70 Truck-Only Lanes Project. The partners submitting letters of support for the project include the following:

- **Elected Officials:** U.S. Congressman Ike Skelton, U.S. Senator Claire McCaskill, U.S. Senator Christopher S. Bond, Missouri Governor Jay Nixon, Missouri Senator William Stouffer, Missouri State Representative Bob Dixon
- **Transportation Planning Partners:** Indiana Department of Transportation, Cooper and Saline County, Missouri, Cities of Marshall and Sweet Springs, Missouri, Regional Planning Commissions (RPCs) including the Northeast Missouri RPC & Rural Development Corporation & Economic Development District, the Mid-MO RPC, the Pioneer Trails RPC, the Mark Twain Regional Council of Governments and the Green Hills RPC
- **Private Sector Support:** American Trucking Association, Missouri Motor Carriers Association, Owner-Operator Independent Drivers Association (OOIDA), Conway Truckload, PRIME, Inc. (Missouri-based trucking company), Greyhound, Missouri Transportation Alliance, Marshall-Saline Development Corporation
- **Disciplinary Integration:** Mothers Against Drunk Driving, University of Missouri, Think First Missouri, School of Medicine and Boone Hospital Center

Letters of support from each of these partners can be viewed via the following link: <http://www.modot.org/arra/tiger/10-Support-Letters.pdf>

In addition, a Memorandum of Understanding and Development Agreement have been developed between the partnering states for the I-70 Corridor of the Future study in support of improving the 800-mile I-70 Corridor from Kansas City, Missouri to the Ohio-West Virginia state line, including Missouri, Illinois, Indiana and Ohio. The Memorandum of Understanding and Development Agreement between these states can be viewed <http://www.modot.org/arra/tiger/23-COF-Executed-MOU.pdf> and <http://www.modot.org/arra/tiger/24-COF-Development-Agreement.pdf>

## Funding Sources

As described within the Grant Funds and Sources and Uses of Project Funds section, MoDOT can help leverage TIGER Grant funding with a 20 percent match of \$40 million in non-federal supporting funds towards completion of the I-70 Truck-Only Lanes Project. These supporting funds are from currently non-programmed funding from MoDOT's 2010-2014 Statewide Transportation Improvement Program (STIP). [http://www.modot.org/plansandprojects/construction\\_program/STIP2010-2014/documents/Se-c05EstimatedFinancialSummary.pdf](http://www.modot.org/plansandprojects/construction_program/STIP2010-2014/documents/Se-c05EstimatedFinancialSummary.pdf) and <http://www.modot.org/arra/tiger/30-STIP-Table3-UnprogrammedFunds.pdf> The TIGER grant funding, in combination with MoDOT's supporting funds of \$40 million, will pay for the total project costs of \$240 million.

In addition to the 20 percent matching funds, MoDOT is committed to funding the resurfacing and rehabilitation of the existing I-70 pavement and shoulders reused as part of the truck-only lanes concept within the I-70 Truck-Only Lanes Project. This equates to an additional \$10 million programmed within MoDOT's current STIP for a project from the Lafayette County line to the Blackwater River, which includes the westernmost portion of the proposed truck-only lanes section extending to the east from Sweet Springs.

There are no other sources of funds or funding parties for the proposed project. Without federal funding assistance, it will be challenging for MoDOT to move this high-priority improvement for the I-70 Corridor forward.

## Federal Wage Rate Requirement

Contractors on MoDOT projects are required to pay either the state or federal prevailing hourly wage rate (whichever is higher) for any craft or type of worker required to perform the work, except when expressly provided by the contract document. The state and federal wage rates are posted on MoDOT's website for each monthly letting. Via

the Web link, select the desired letting date, click the "View Letting" button and then proceed to State Wage Rates and Current Federal Wage Rates. [http://www.modot.org/business/contractor\\_resources/bidOpenIndex.shtml](http://www.modot.org/business/contractor_resources/bidOpenIndex.shtml)

Link to Job Special Provision that appears in every MoDOT contract that has Federal-aid: <http://www3.modot.org/job-spec2.nsf/40d8d12ad121cf2f862567bb004c65ce/e2215c9989473ef0862574a20041e9f2?OpenDocument>

MoDOT certifies that it will comply with the requirements of subchapter IV of chapter 31 of title 40, United States Code (Federal wage rate requirements), as required by the Recovery Act.



(Kevin Keith, MoDOT Chief Engineer)

## NEPA Requirement

On August 14, 2009 the Record of Decision for the I-70 Supplemental Environmental Impact Statement was signed by the Federal Highway Administration. The FHWA approved the recommendation of the Truck-Only Lanes Alternative as the Selected Alternative for the I-70 Corridor. <http://www.improvei70.org> As a result, the I-70 Truck-Only Lanes Project requesting TIGER Grant funds has completed all environmental approvals necessary through the NEPA process for the project to proceed to design and construction. Any remaining permitting and cultural or environmental mitigation/testing required as a result of the NEPA process for the project is summarized in the Environmentally Related Federal, State and Local Actions section of the application.

## Environmentally-Related Federal, State and Local Actions

Following submission of this application and through the design-build procurement process, MoDOT will work to fulfill the following environmental commitments identified during the NEPA process within the study area for the I-70 Truck-Only Lanes Project:

- Clean Water Act Section 404 Individual Permit and mitigation relating to wetland and jurisdictional pond impacts.
- Section 106 cultural resources activities still remaining



to be completed, including surveys due to land owner denial and archaeological sites requiring further Phase II testing to determine eligibility for listing on the National Register of Historic Places.

- Hazardous/Solid Waste Commitment. Sites that will be impacted by the proposed project will need to be visited to identify possible soil or water contamination. There are approximately four hazardous waste sites and three tanks or gas station sites immediately adjacent to I-70 between the Saline County line and Route 5 at Boonville.
- Running Buffalo Clover habitat assessment at the Lamine River crossing.

Each of these environmental commitments is described further within the following Web link: <http://www.modot.org/arra/tiger/29-Environmental-Commitments.pdf>

### Web Links

An index of Web links referenced within the application can be reviewed at <http://www.modot.org/arra/tiger/>.

America's interstate system was born in Missouri. Now Missouri leads the nation again by being the first to design and build truck-only lanes on I-70.

